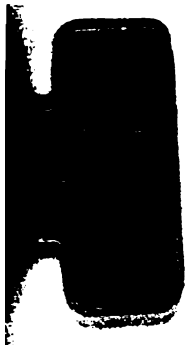

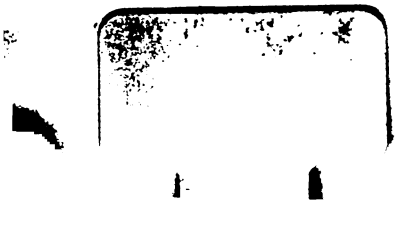

MATHEMATICAL SERIES

While this series has been planned to meet the needs of the student who is preparing for engineering work, it is hoped that it will serve equally well the purposes of those schools where mathematics is taken as an element in a liberal education. In order that the applications introduced may be of such character as to interest the general student and to train the prospective engineer in the kind of work which he is most likely to meet, it has been the policy of the editors to select, as joint authors of each text, a mathematician and a trained engineer or physicist.

The problems as well as the applications introduced in the text are of such a character as to draw upon the student's general information which will be of use to him later in the application of mathematics. Without sacrificing the value of mathematical study as a discipline, it is the purpose of the series so to correlate the mathematics with the physical applications as to stimulate the interest and train the student to use his mathematics as a means of investigation and stating the laws of physical phenomena.

The following texts are ready:

I. Calculus.

By E. J. TOWNSEND, Professor of Mathematics in the University of Illinois, and G. A. GOODENOUGH, Professor of Mechanical Engineering, University of Illinois. $2.50.

II. Essentials of Calculus.

By E. J. TOWNSEND and G. A. GOODENOUGH. $2.00.

III. College Algebra.

By H. L. RIETZ, Assistant Professor of Mathematics in the University of Illinois, and DR. A. R. CRATHORNE, Associate in Mathematics in the University of Illinois. $1.40.

IV. Plane Trigonometry, with Trigonometric and Logarithmic Tables.

By A. G. HALL, Professor of Mathematics in the University of Michigan, and F. H. FRINK, Professor of Railway Engineering in the University of Oregon. $1.25.

V. Plane and Spherical Trigonometry.

(Without Tables)

By A. G. HALL and F. H. FRINK. $1.00.

VI. Trigonometric and Logarithmic Tables.

By A. G. HALL and F. H. FRINK. 75 cents.

HENRY HOLT AND COMPANY

NEW YORK CHICAGO

TRIGONOMETRIC AND LOGARITHMIC TABLES

BY

ARTHUR GRAHAM HALL, PH.D. (LEIPZIG)

PROFESSOR OF MATHEMATICS
UNIVERSITY OF MICHIGAN

AND

FRED GOODRICH FRINK, M.S. (CHICAGO)

PROFESSOR OF RAILWAY ENGINEERING
UNIVERSITY OF OREGON

NEW YORK
HENRY HOLT AND COMPANY
1911

Norwood Press
J. S. Cushing Co. — Berwick & Smith Co.
Norwood, Mass., U.S.A.

CONTENTS

TABLES

TABLE I

COMMON LOGARITHMS

OF NUMBERS

N.	Log.	N.	Log.	N.	Log.	N.	Log.	N.	Log.
0	— Infinity.	30	1.47 712	60	1.77 815	90	1.95 424	120	2.07 918
1	0.00 000	31	1.49 136	61	1.78 533	91	1.95 904	121	2.08 279
2	0.30 103	32	1.50 515	62	1.79 239	92	1.96 379	122	2.08 636
3	0.47 712	33	1.51 851	63	1.79 934	93	1.96 848	123	2.08 991
4	0.60 206	34	1.53 148	64	1.80 618	94	1.97 313	124	2.09 342
5	0.69 897	35	1.54 407	65	1.81 291	95	1.97 772	125	2.09 691
6	0.77 815	36	1.55 630	66	1.81 954	96	1.98 227	126	2.10 037
7	0.84 510	37	1.56 820	67	1.82 607	97	1.98 677	127	2.10 380
8	0.90 309	38	1.57 978	68	1.83 251	98	1.99 123	128	2.10 721
9	0.95 424	39	1.59 106	69	1.83 885	99	1.99 564	129	2.11 059
10	1.00 000	40	1.60 206	70	1.84 510	100	2.00 000	130	2.11 394
11	1.04 139	41	1.61 278	71	1.85 126	101	2.00 432	131	2.11 727
12	1.07 918	42	1.62 325	72	1.85 733	102	2.00 860	132	2.12 057
13	1.11 394	43	1.63 347	73	1.86 332	103	2.01 284	133	2.12 385
14	1.14 613	44	1.64 345	74	1.86 923	104	2.01 703	134	2.12 710
15	1.17 609	45	1.65 321	75	1.87 506	105	2.02 119	135	2.13 033
16	1.20 412	46	1.66 276	76	1.88 081	106	2.02 531	136	2.13 354
17	1.23 045	47	1.67 210	77	1.88 649	107	2.02 938	137	2.13 672
18	1.25 527	48	1.68 124	78	1.89 209	108	2.03 342	138	2.13 988
19	1.27 875	49	1.69 020	79	1.89 763	109	2.03 743	139	2.14 301
20	1.30 103	50	1.69 897	80	1.90 309	110	2.04 139	140	2.14 613
21	1.32 222	51	1.70 757	81	1.90 849	111	2.04 532	141	2.14 922
22	1.34 242	52	1.71 600	82	1.91 381	112	2.04 922	142	2.15 229
23	1.36 173	53	1.72 428	83	1.91 908	113	2.05 308	143	2.15 534
24	1.38 021	54	1.73 239	84	1.92 428	114	2.05 690	144	2.15 836
25	1.39 794	55	1.74 036	85	1.92 942	115	2.06 070	145	2.16 137
26	1.41 497	56	1.74 819	86	1.93 450	116	2.06 446	146	2.16 435
27	1.43 136	57	1.75 587	87	1.93 952	117	2.06 819	147	2.16 732
28	1.44 716	58	1.76 343	88	1.94 448	118	2.07 188	148	2.17 026
29	1.46 240	59	1.77 085	89	1.94 939	119	2.07 555	149	2.17 319
30	1.47 712	60	1.77 815	90	1.95 424	120	2.07 918	150	2.17 609

N.	0	1	2	3	4	5	6	7	8	9
100	00 000	043	087	130	173	217	260	303	346	389
01	432	475	518	561	604	647	689	732	775	817
02	860	903	945	988	*030	*072	*115	*157	*199	*242
03	01 284	326	368	410	452	494	536	578	620	662
04	703	745	787	828	870	912	953	995	*036	*078
05	02 119	160	202	243	284	325	366	407	449	490
06	531	572	612	653	694	735	776	816	857	898
07	938	979	*019	*060	*100	*141	*181	*222	*262	*302
08	03 342	383	423	463	503	543	583	623	663	703
09	743	782	822	862	902	941	981	*021	*060	*100
110	04 139	179	218	258	297	336	376	415	454	493
11	532	571	610	650	689	727	766	805	844	883
12	922	961	999	*038	*077	*115	*154	*192	*231	*269
13	05 308	346	385	423	461	500	538	576	614	652
14	690	729	767	805	843	881	918	956	994	*032
15	06 070	108	145	183	221	258	296	333	371	408
16	446	483	521	558	595	633	670	707	744	781
17	819	856	893	930	967	*004	*041	*078	*115	*151
18	07 188	225	262	298	335	372	408	445	482	518
19	555	591	628	664	700	737	773	809	846	882
120	918	954	990	*027	*063	*099	*135	*171	*207	*243
21	08 279	314	350	386	422	458	493	529	565	600
22	636	672	707	743	778	814	849	884	920	955
23	991	*026	*061	*096	*132	*167	*202	*237	*272	*307
24	09 342	377	412	447	482	517	552	587	621	656
25	691	726	760	795	830	864	899	934	968	*003
26	10 037	072	106	140	175	209	243	278	312	346
27	380	415	449	483	517	551	585	619	653	687
28	721	755	789	823	857	890	924	958	992	*025
29	11 059	093	126	160	193	227	261	294	327	361
130	394	428	461	494	528	561	594	628	661	694
31	727	760	793	826	860	893	926	959	992	*024
32	12 057	090	123	156	189	222	254	287	320	352
33	385	418	450	483	516	548	581	613	646	678
34	710	743	775	808	840	872	905	937	969	*001
35	13 033	066	098	130	162	194	226	258	290	322
36	354	386	418	450	481	513	545	577	609	640
37	672	704	735	767	799	830	862	893	925	956
38	988	*019	*051	*082	*114	*145	*176	*208	*239	*270
39	14 301	333	364	395	426	457	489	520	551	582
140	613	644	675	706	737	768	799	829	860	891
41	922	953	983	*014	*045	*076	*106	*137	*168	*198
42	15 229	259	290	320	351	381	412	442	473	503
43	534	564	594	625	655	685	715	746	776	806
44	836	866	897	927	957	987	*017	*047	*077	*107
45	16 137	167	197	227	256	286	316	346	376	406
46	435	465	495	524	554	584	613	643	673	702
47	732	761	791	820	850	879	909	938	967	997
48	17 026	056	085	114	143	173	202	231	260	289
49	319	348	377	406	435	464	493	522	551	580
150	609	638	667	696	725	754	782	811	840	869

N.	0	1	2	3	4	5	6	7	8	9

Prop. Pts.

	44	43	42
1	4.4	4.3	4.2
2	8.8	8.6	8.4
3	13.2	12.9	12.6
4	17.6	17.2	16.8
5	22.0	21.5	21.0
6	26.4	25.8	25.2
7	30.8	30.1	29.4
8	35.2	34.4	33.6
9	39.6	38.7	37.8

	41	40	39
1	4.1	4.0	3.9
2	8.2	8.0	7.8
3	12.3	12.0	11.7
4	16.4	16.0	15.6
5	20.5	20.0	19.5
6	24.6	24.0	23.4
7	28.7	28.0	27.3
8	32.8	32.0	31.2
9	36.9	36.0	35.1

	38	37	36
1	3.8	3.7	3.6
2	7.6	7.4	7.2
3	11.4	11.1	10.8
4	15.2	14.8	14.4
5	19.0	18.5	18.0
6	22.8	22.2	21.6
7	26.6	25.9	25.2
8	30.4	29.6	28.8
9	34.2	33.3	32.4

	35	34	33
1	3.5	3.4	3.3
2	7.0	6.8	6.6
3	10.5	10.2	9.9
4	14.0	13.6	13.2
5	17.5	17.0	16.5
6	21.0	20.4	19.8
7	24.5	23.8	23.1
8	28.0	27.2	26.4
9	31.5	30.6	29.7

	32	31	30
1	3.2	3.1	3.0
2	6.4	6.2	6.0
3	9.6	9.3	9.0
4	12.8	12.4	12.0
5	16.0	15.5	15.0
6	19.2	18.6	18.0
7	22.4	21.7	21.0
8	25.6	24.8	24.0
9	28.8	27.9	27.0

Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9
150	17 609	638	667	696	725	754	782	811	840	869
51	898	926	955	984	*013	*041	*070	*099	*127	*156
52	18 184	213	241	270	298	327	355	384	412	441
53	469	498	526	554	583	611	639	667	696	724
54	752	780	808	837	865	893	921	949	977	*005
55	19 033	061	089	117	145	173	201	229	257	285
56	312	340	368	396	424	451	479	507	535	562
57	590	618	645	673	700	728	756	783	811	838
58	866	893	921	948	976	*003	*030	*058	*085	*112
59	20 140	167	194	222	249	276	303	330	358	385
160	412	439	466	493	520	548	575	602	629	656
61	683	710	737	763	790	817	844	871	898	925
62	952	978	*005	*032	*059	*085	*112	*139	*165	*192
63	21 219	245	272	299	325	352	378	405	431	458
64	484	511	537	564	590	617	643	669	696	722
65	748	775	801	827	854	880	906	932	958	985
66	22 011	037	063	089	115	141	167	194	220	246
67	272	298	324	350	376	401	427	453	479	505
68	531	557	583	608	634	660	686	712	737	763
69	789	814	840	866	891	917	943	968	994	*019
170	23 045	070	096	121	147	172	198	223	249	274
71	300	325	350	376	401	426	452	477	502	528
72	553	578	603	629	654	679	704	729	754	779
73	805	830	855	880	905	930	955	980	*005	*030
74	24 055	080	105	130	155	180	204	229	254	279
75	304	329	353	378	403	428	452	477	502	527
76	551	576	601	625	650	674	699	724	748	773
77	797	822	846	871	895	920	944	969	993	*018
78	25 042	066	091	115	139	164	188	212	237	261
79	285	310	334	358	382	406	431	455	479	503
180	527	551	575	600	624	648	672	696	720	744
81	768	792	816	840	864	888	912	935	959	983
82	26 007	031	055	079	102	126	150	174	198	221
83	245	269	293	316	340	364	387	411	435	458
84	482	505	529	553	576	600	623	647	670	694
85	717	741	764	788	811	834	858	881	905	928
86	951	975	998	*021	*045	*068	*091	*114	*138	*161
87	27 184	207	231	254	277	300	323	346	370	393
88	416	439	462	485	508	531	554	577	600	623
89	646	669	692	715	738	761	784	807	830	852
190	875	898	921	944	967	989	*012	*035	*058	*081
91	28 103	126	149	171	194	217	240	262	285	307
92	330	353	375	398	421	443	466	488	511	533
93	556	578	601	623	646	668	691	713	735	758
94	780	803	825	847	870	892	914	937	959	981
95	29 003	026	048	070	092	115	137	159	181	203
96	226	248	270	292	314	336	358	380	403	425
97	447	469	491	513	535	557	579	601	623	645
98	667	688	710	732	754	776	798	820	842	863
99	885	907	929	951	973	994	*016	*038	*060	*081
200	30 103	125	146	168	190	211	233	255	276	298
N.	0	1	2	3	4	5	6	7	8	9

Prop. Pts.		
	29	28
1	2.9	2.8
2	5.8	5.6
3	8.7	8.4
4	11.6	11.2
5	14.5	14.0
6	17.4	16.8
7	20.3	19.6
8	23.2	22.4
9	26.1	25.2

	27	26
1	2.7	2.6
2	5.4	5.2
3	8.1	7.8
4	10.8	10.4
5	13.5	13.0
6	16.2	15.6
7	18.9	18.2
8	21.6	20.8
9	24.3	23.4

	25
1	2.5
2	5.0
3	7.5
4	10.0
5	12.5
6	15.0
7	17.5
8	20.0
9	22.5

	24	23
1	2.4	2.3
2	4.8	4.6
3	7.2	6.9
4	9.6	9.2
5	12.0	11.5
6	14.4	13.8
7	16.8	16.1
8	19.2	18.4
9	21.6	20.7

	22	21
1	2.2	2.1
2	4.4	4.2
3	6.6	6.3
4	8.8	8.4
5	11.0	10.5
6	13.2	12.6
7	15.4	14.7
8	17.6	16.8
9	19.8	18.9

Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
200	30 103	125	146	168	190	211	233	255	276	298	
01	320	341	363	384	406	428	449	471	492	514	22 21
02	535	557	578	600	621	643	664	685	707	728	1 2.2 2.1
03	750	771	792	814	835	856	878	899	920	942	2 4.4 4.2
04	963	984	*006	*027	*048	*069	*091	*112	*133	*154	3 6.6 6.3
05	31 175	197	218	239	260	281	302	323	345	366	4 8.8 8.4
06	387	408	429	450	471	492	513	534	555	576	5 11.0 10.5
07	597	618	639	660	681	702	723	744	765	785	6 13.2 12.6
08	806	827	848	869	890	911	931	952	973	994	7 15.4 14.7
09	32 015	035	056	077	098	118	139	160	181	201	8 17.6 16.8
210	222	243	263	284	305	325	346	366	387	408	9 19.8 18.9
11	428	449	469	490	510	531	552	572	593	613	20
12	634	654	675	695	715	736	756	777	797	818	1 2.0
13	838	858	879	899	919	940	960	980	*001	*021	2 4.0
14	33 041	062	082	102	122	143	163	183	203	224	3 6.0
15	244	264	284	304	325	345	365	385	405	425	4 8.0
16	445	465	486	506	526	546	566	586	606	626	5 10.0
17	646	666	686	706	726	746	766	786	806	826	6 12.0
18	846	866	885	905	925	945	965	985	*005	*025	7 14.0
19	34 044	064	084	104	124	143	163	183	203	223	8 16.0
220	242	262	282	301	321	341	361	380	400	420	9 18.0
21	439	459	479	498	518	537	557	577	596	616	19
22	635	655	674	694	713	733	753	772	792	811	1 1.9
23	830	850	869	889	908	928	947	967	986	*005	2 3.8
24	35 025	044	064	083	102	122	141	160	180	199	3 5.7
25	218	238	257	276	295	315	334	353	372	392	4 7.6
26	411	430	449	468	488	507	526	545	564	583	5 9.5
27	603	622	641	660	679	698	717	736	755	774	6 11.4
28	793	813	832	851	870	889	908	927	946	965	7 13.3
29	984	*003	*021	*040	*059	*078	*097	*116	*135	*154	8 15.2
230	36 173	192	211	229	248	267	286	305	324	342	9 17.1
31	361	380	399	418	436	455	474	493	511	530	18
32	549	568	586	605	624	642	661	680	698	717	1 1.8
33	736	754	773	791	810	829	847	866	884	903	2 3.6
34	922	940	959	977	996	*014	*033	*051	*070	*088	3 5.4
35	37 107	125	144	162	181	199	218	236	254	273	4 7.2
36	291	310	328	346	365	383	401	420	438	457	5 9.0
37	475	493	511	530	548	566	585	603	621	639	6 10.8
38	658	676	694	712	731	749	767	785	803	822	7 12.6
39	840	858	876	894	912	931	949	967	985	*003	8 14.4
240	38 021	039	057	075	093	112	130	148	166	184	9 16.2
41	202	220	238	256	274	292	310	328	346	364	17
42	382	399	417	435	453	471	489	507	525	543	1 1.7
43	561	578	596	614	632	650	668	686	703	721	2 3.4
44	739	757	775	792	810	828	846	863	881	899	3 5.1
45	917	934	952	970	987	*005	*023	*041	*058	*076	4 6.8
46	39 094	111	129	146	164	182	199	217	235	252	5 8.5
47	270	287	305	322	340	358	375	393	410	428	6 10.2
48	445	463	480	498	515	533	550	568	585	602	7 11.9
49	620	637	655	672	690	707	724	742	759	777	8 13.6
250	794	811	829	846	863	881	898	915	933	950	9 15.3
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
250	39 794	811	829	846	863	881	898	915	933	950	
51	967	98$\bar{5}$	*002	*019	*037	*054	*071	*088	*106	*123	18
52	40 140	157	17$\bar{5}$	192	209	226	243	261	278	29$\bar{5}$	
53	312	329	346	364	381	398	41$\bar{5}$	432	449	466	1 1.8
54	483	500	518	53$\bar{5}$	552	569	586	603	620	637	2 3.6
55	654	671	688	705	722	739	756	773	790	807	3 5.4
56	824	841	858	87$\bar{5}$	892	909	926	943	960	976	4 7.2
57	993	*010	*027	*044	*061	*078	*09$\bar{5}$	*111	*128	*145	5 9.0
58	41 162	179	196	212	229	246	263	280	296	313	6 10.8
59	330	347	363	380	397	414	430	447	464	481	7 12.6
260	497	514	531	547	564	581	597	614	631	647	8 14.4
61	664	681	697	714	731	747	764	780	797	814	9 16.2
62	830	847	863	880	896	913	929	946	963	979	17
63	996	*012	*029	*045	*062	*078	*09$\bar{5}$	*111	*127	*144	1 1.7
64	42 160	177	193	210	226	243	259	275	292	308	2 3.4
65	32$\bar{5}$	341	357	374	390	406	423	439	455	472	3 5.1
66	488	504	521	537	553	570	586	602	619	63$\bar{5}$	4 6.8
67	651	667	684	700	716	732	749	76$\bar{5}$	781	797	5 8.5
68	813	830	846	862	878	894	911	927	943	959	6 10.2
69	975	991	*008	*024	*040	*056	*072	*088	*104	*120	7 11.9
270	43 136	152	169	18$\bar{5}$	201	217	233	249	26$\bar{5}$	281	8 13.6
71	297	313	329	34$\bar{5}$	361	377	393	409	42$\bar{5}$	441	9 15.3
72	457	473	489	50$\bar{5}$	521	537	553	569	584	600	16
73	616	632	648	664	680	696	712	727	743	759	1 1.6
74	775	791	807	823	838	854	870	886	902	917	2 3.2
75	933	949	96$\bar{5}$	981	996	*012	*028	*044	*059	*075	3 4.8
76	44 091	107	122	138	154	170	185	201	217	232	4 6.4
77	248	264	279	29$\bar{5}$	311	326	342	358	373	389	5 8.0
78	404	420	436	451	467	483	498	514	529	54$\bar{5}$	6 9.6
79	560	576	592	607	623	638	654	669	68$\bar{5}$	700	7 11.2
280	716	731	747	762	778	793	809	824	840	855	8 12.8
81	871	886	902	917	932	948	963	979	994	*010	9 14.4
82	45 02$\bar{5}$	040	056	071	086	102	117	133	148	163	15
83	179	194	209	22$\bar{5}$	240	255	271	286	301	317	1 1.5
84	332	347	362	378	393	408	423	439	454	469	2 3.0
85	484	500	51$\bar{5}$	530	545	561	576	591	606	621	3 4.5
86	637	652	667	682	697	712	728	743	758	773	4 6.0
87	788	803	818	834	849	864	879	894	909	924	5 7.5
88	939	954	969	984	*000	*01$\bar{5}$	*030	*04$\bar{5}$	*060	*07$\bar{5}$	6 9.0
89	46 090	10$\bar{5}$	120	13$\bar{5}$	1$\bar{5}$0	16$\bar{5}$	180	19$\bar{5}$	210	22$\bar{5}$	7 10.5
290	240	25$\bar{5}$	270	28$\bar{5}$	300	31$\bar{5}$	330	34$\bar{5}$	359	374	8 12.0
91	389	404	419	434	449	464	479	494	509	523	9 13.5
92	538	553	568	583	598	613	627	642	657	672	14
93	687	702	716	731	746	761	776	790	805	820	1 1.4
94	83$\bar{5}$	8$\bar{5}$0	864	879	894	909	923	938	953	967	2 2.8
95	982	997	*012	*026	*041	*056	*070	*085	*100	*114	3 4.2
96	47 129	144	159	173	188	202	217	232	246	261	4 5.6
97	276	290	30$\bar{5}$	319	334	349	363	378	392	407	5 7.0
98	422	436	451	465	480	494	509	524	538	553	6 8.4
99	567	582	596	611	625	640	654	669	683	698	7 9.8
300	712	727	741	756	770	784	799	813	828	842	8 11.2
											9 12.6
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
800	47 712	727	741	756	770	784	799	813	828	842	
01	857	871	885	900	914	929	943	958	972	986	
02	48 001	015	029	044	058	073	087	101	116	130	
03	144	159	173	187	202	216	230	244	259	273	15
04	287	302	316	330	344	359	373	387	401	416	1 1.5
05	430	444	458	473	487	501	515	530	544	558	2 3.0
06	572	586	601	615	629	643	657	671	686	700	3 4.5
07	714	728	742	756	770	785	799	813	827	841	4 6.0
08	855	869	883	897	911	926	940	954	968	982	5 7.5
09	996	*010	*024	*038	*052	*066	*080	*094	*108	*122	6 9.0
810	49 136	150	164	178	192	206	220	234	248	262	7 10.5
11	276	290	304	318	332	346	360	374	388	402	8 12.0
12	415	429	443	457	471	485	499	513	527	541	9 13.5
13	554	568	582	596	610	624	638	651	665	679	
14	693	707	721	734	748	762	776	790	803	817	
15	831	845	859	872	886	900	914	927	941	955	14
16	969	982	996	*010	*024	*037	*051	*065	*079	*092	1 1.4
17	50 106	120	133	147	161	174	188	202	215	229	2 2.8
18	243	256	270	284	297	311	325	338	352	365	3 4.2
19	379	393	406	420	433	447	461	474	488	501	4 5.6
820	515	529	542	556	569	583	596	610	623	637	5 7.0
21	651	664	678	691	705	718	732	745	759	772	6 8.4
22	786	799	813	826	840	853	866	880	893	907	7 9.8
23	920	934	947	961	974	987	*001	*014	*028	*041	8 11.2
24	51 055	068	081	095	108	121	135	148	162	175	9 12.6
25	188	202	215	228	242	255	268	282	295	308	
26	322	335	348	362	375	388	402	415	428	441	
27	455	468	481	495	508	521	534	548	561	574	13
28	587	601	614	627	640	654	667	680	693	706	1 1.3
29	720	733	746	759	772	786	799	812	825	838	2 2.6
830	851	865	878	891	904	917	930	943	957	970	3 3.9
31	983	996	*009	*022	*035	*048	*061	*075	*088	*101	4 5.2
32	52 114	127	140	153	166	179	192	205	218	231	5 6.5
33	244	257	270	284	297	310	323	336	349	362	6 7.8
34	375	388	401	414	427	440	453	466	479	492	7 9.1
35	504	517	530	543	556	569	582	595	608	621	8 10.4
36	634	647	660	673	686	699	711	724	737	750	9 11.7
37	763	776	789	802	815	827	840	853	866	879	
38	892	905	917	930	943	956	969	982	994	*007	
39	53 020	033	046	058	071	084	097	110	122	135	12
840	148	161	173	186	199	212	224	237	250	263	1 1.2
41	275	288	301	314	326	339	352	364	377	390	2 2.4
42	403	415	428	441	453	466	479	491	504	517	3 3.6
43	529	542	555	567	580	593	605	618	631	643	4 4.8
44	656	668	681	694	706	719	732	744	757	769	5 6.0
45	782	794	807	820	832	845	857	870	882	895	6 7.2
46	908	920	933	945	958	970	983	995	*008	*020	7 8.4
47	54 033	045	058	070	083	095	108	120	133	145	8 9.6
48	158	170	183	195	208	220	233	245	258	270	9 10.8
49	283	295	307	320	332	345	357	370	382	394	
850	407	419	432	444	456	469	481	494	506	518	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
850	54 407	419	432	444	456	469	481	494	506	518	
51	531	543	555	568	580	593	605	617	630	642	
52	654	667	679	691	704	716	728	741	753	765	
53	777	790	802	814	827	839	851	864	876	888	13
54	900	913	925	937	949	962	974	986	998	*011	1 1.3
55	55 023	035	047	060	072	084	096	108	121	133	2 2.6
56	145	157	169	182	194	206	218	230	242	255	3 3.9
57	267	279	291	303	315	328	340	352	364	376	4 5.2
58	388	400	413	425	437	449	461	473	485	497	5 6.5
59	509	522	534	546	558	570	582	594	606	618	6 7.8
860	630	642	654	666	678	691	703	715	727	739	7 9.1
61	751	763	775	787	799	811	823	835	847	859	8 10.4
62	871	883	895	907	919	931	943	955	967	979	9 11.7
63	991	*003	*015	*027	*038	*050	*062	*074	*086	*098	
64	56 110	122	134	146	158	170	182	194	205	217	
65	229	241	253	265	277	289	301	312	324	336	12
66	348	360	372	384	396	407	419	431	443	455	1 1.2
67	467	478	490	502	514	526	538	549	561	573	2 2.4
68	585	597	608	620	632	644	656	667	679	691	3 3.6
69	703	714	726	738	750	761	773	785	797	808	4 4.8
870	820	832	844	855	867	879	891	902	914	926	5 6.0
71	937	949	961	972	984	996	*008	*019	*031	*043	6 7.2
72	57 054	066	078	089	101	113	124	136	148	159	7 8.4
73	171	183	194	206	217	229	241	252	264	276	8 9.6
74	287	299	310	322	334	345	357	368	380	392	9 10.8
75	403	415	426	438	449	461	473	484	496	507	
76	519	530	542	553	565	576	588	600	611	623	
77	634	646	657	669	680	692	703	715	726	738	11
78	749	761	772	784	795	807	818	830	841	852	1 1.1
79	864	875	887	898	910	921	933	944	955	967	2 2.2
880	978	990	*001	*013	*024	*035	*047	*058	*070	*081	3 3.3
81	58 092	104	115	127	138	149	161	172	184	195	4 4.4
82	206	218	229	240	252	263	274	286	297	309	5 5.5
83	320	331	343	354	365	377	388	399	410	422	6 6.6
84	433	444	456	467	478	490	501	512	524	535	7 7.7
85	546	557	569	580	591	602	614	625	636	647	8 8.8
86	659	670	681	692	704	715	726	737	749	760	9 9.9
87	771	782	794	805	816	827	838	850	861	872	
88	883	894	906	917	928	939	950	961	973	984	
89	995	*006	*017	*028	*040	*051	*062	*073	*084	*095	10
890	59 106	118	129	140	151	162	173	184	195	207	1 1.0
91	218	229	240	251	262	273	284	295	306	318	2 2.0
92	329	340	351	362	373	384	395	406	417	428	3 3.0
93	439	450	461	472	483	494	506	517	528	539	4 4.0
94	550	561	572	583	594	605	616	627	638	649	5 5.0
95	660	671	682	693	704	715	726	737	748	759	6 6.0
96	770	780	791	802	813	824	835	846	857	868	7 7.0
97	879	890	901	912	923	934	945	956	966	977	8 8.0
98	988	999	*010	*021	*032	*043	*054	*065	*076	*086	9 9.0
99	60 097	108	119	130	141	152	163	173	184	195	
400	206	217	228	239	249	260	271	282	293	304	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
400	60 206	217	228	239	249	260	271	282	293	304	
01	314	325	336	347	358	369	379	390	401	412	
02	423	433	444	455	466	477	487	498	509	520	
03	531	541	552	563	574	584	595	606	617	627	
04	638	649	660	670	681	692	703	713	724	735	
05	746	756	767	778	788	799	810	821	831	842	
06	853	863	874	885	895	906	917	927	938	949	11
07	959	970	981	991	*002	*013	*023	*034	*045	*055	1 1.1
08	61 066	077	087	098	109	119	130	140	151	162	2 2.2
09	172	183	194	204	215	225	236	247	257	268	3 3.3
410	278	289	300	310	321	331	342	352	363	374	4 4.4
11	384	395	405	416	426	437	448	458	469	479	5 5.5
12	490	500	511	521	532	542	553	563	574	584	6 6.6
13	595	606	616	627	637	648	658	669	679	690	7 7.7
14	700	711	721	731	742	752	763	773	784	794	8 8.8
15	805	815	826	836	847	857	868	878	888	899	9 9.9
16	909	920	930	941	951	962	972	982	993	*003	
17	62 014	024	034	045	055	066	076	086	097	107	
18	118	128	138	149	159	170	180	190	201	211	
19	221	232	242	252	263	273	284	294	304	315	
420	325	335	346	356	366	377	387	397	408	418	
21	428	439	449	459	469	480	490	500	511	521	10
22	531	542	552	562	572	583	593	603	613	624	1 1.0
23	634	644	655	665	675	685	696	706	716	726	2 2.0
24	737	747	757	767	778	788	798	808	818	829	3 3.0
25	839	849	859	870	880	890	900	910	921	931	4 4.0
26	941	951	961	972	982	992	*002	*012	*022	*033	5 5.0
27	63 043	053	063	073	083	094	104	114	124	134	6 6.0
28	144	155	165	175	185	195	205	215	225	236	7 7.0
29	246	256	266	276	286	296	306	317	327	337	8 8.0
430	347	357	367	377	387	397	407	417	428	438	9 9.0
31	448	458	468	478	488	498	508	518	528	538	
32	548	558	568	579	589	599	609	619	629	639	
33	649	659	669	679	689	699	709	719	729	739	
34	749	759	769	779	789	799	809	819	829	839	
35	849	859	869	879	889	899	909	919	929	939	
36	949	959	969	979	988	998	*008	*018	*028	*038	9
37	64 048	058	068	078	088	098	108	118	128	137	1 0.9
38	147	157	167	177	187	197	207	217	227	237	2 1.8
39	246	256	266	276	286	296	306	316	326	335	3 2.7
440	345	355	365	375	385	395	404	414	424	434	4 3.6
41	444	454	464	473	483	493	503	513	523	532	5 4.5
42	542	552	562	572	582	591	601	611	621	631	6 5.4
43	640	650	660	670	680	689	699	709	719	729	7 6.3
44	738	748	758	768	777	787	797	807	816	826	8 7.2
45	836	846	856	865	875	885	895	904	914	924	9 8.1
46	933	943	953	963	972	982	992	*002	*011	*021	
47	65 031	040	050	060	070	079	089	099	108	118	
48	128	137	147	157	167	176	186	196	205	215	
49	225	234	244	254	263	273	283	292	302	312	
450	321	331	341	350	360	369	379	389	398	408	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
450	65 321	331	341	350	360	369	379	389	398	408	
51	418	427	437	447	456	466	475	485	495	504	
52	514	523	533	543	552	562	571	581	591	600	
53	610	619	629	639	648	658	667	677	686	696	
54	706	715	725	734	744	753	763	772	782	792	
55	801	811	820	830	839	849	858	868	877	887	
56	896	906	916	925	935	944	954	963	973	982	10
57	992	*001	*011	*020	*030	*039	*049	*058	*068	*077	1 1.0
58	66 087	096	106	115	124	134	143	153	162	172	2 2.0
59	181	191	200	210	219	229	238	247	257	266	3 3.0
460	276	285	295	304	314	323	332	342	351	361	4 4.0
61	370	380	389	398	408	417	427	436	445	455	5 5.0
62	464	474	483	492	502	511	521	530	539	549	6 6.0
63	558	567	577	586	596	605	614	624	633	642	7 7.0
64	652	661	671	680	689	699	708	717	727	736	8 8.0
65	745	755	764	773	783	792	801	811	820	829	9 9.0
66	839	848	857	867	876	885	894	904	913	922	
67	932	941	950	960	969	978	987	997	*006	*015	
68	67 025	034	043	052	062	071	080	089	099	108	
69	117	127	136	145	154	164	173	182	191	201	
470	210	219	228	237	247	256	265	274	284	293	
71	302	311	321	330	339	348	357	367	376	385	9
72	394	403	413	422	431	440	449	459	468	477	1 0.9
73	486	495	504	514	523	532	541	550	560	569	2 1.8
74	578	587	596	605	614	624	633	642	651	660	3 2.7
75	669	679	688	697	706	715	724	733	742	752	4 3.6
76	761	770	779	788	797	806	815	825	834	843	5 4.5
77	852	861	870	879	888	897	906	916	925	934	6 5.4
78	943	952	961	970	979	988	997	*006	*015	*024	7 6.3
79	68 034	043	052	061	070	079	088	097	106	115	8 7.2
480	124	133	142	151	160	169	178	187	196	205	9 8.1
81	215	224	233	242	251	260	269	278	287	296	
82	305	314	323	332	341	350	359	368	377	386	
83	395	404	413	422	431	440	449	458	467	476	
84	485	494	502	511	520	529	538	547	556	565	
85	574	583	592	601	610	619	628	637	646	655	
86	664	673	681	690	699	708	717	726	735	744	8
87	753	762	771	780	789	797	806	815	824	833	1 0.8
88	842	851	860	869	878	886	895	904	913	922	2 1.6
89	931	940	949	958	966	975	984	993	*002	*011	3 2.4
490	69 020	028	037	046	055	064	073	082	090	099	4 3.2
91	108	117	126	135	144	152	161	170	179	188	5 4.0
92	197	205	214	223	232	241	249	258	267	276	6 4.8
93	285	294	302	311	320	329	338	346	355	364	7 5.6
94	373	381	390	399	408	417	425	434	443	452	8 6.4
95	461	469	478	487	496	504	513	522	531	539	9 7.2
96	548	557	566	574	583	592	601	609	618	627	
97	636	644	653	662	671	679	688	697	705	714	
98	723	732	740	749	758	767	775	784	793	801	
99	810	819	827	836	845	854	862	871	880	888	
500	897	906	914	923	932	940	949	958	966	975	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
500	69 897	906	914	923	932	940	949	958	966	975	
01	984	992	*001	*010	*018	*027	*036	*044	*053	*062	
02	70 070	079	088	096	105	114	122	131	140	148	
03	157	165	174	183	191	200	209	217	226	234	
04	243	252	260	269	278	286	295	303	312	321	
05	329	338	346	355	364	372	381	389	398	406	
06	415	424	432	441	449	458	467	475	484	492	9
07	501	509	518	526	535	544	552	561	569	578	1 0.9
08	586	595	603	612	621	629	638	646	655	663	2 1.8
09	672	680	689	697	706	714	723	731	740	749	3 2.7
510	757	766	774	783	791	800	808	817	825	834	4 3.6
11	842	851	859	868	876	885	893	902	910	919	5 4.5
12	927	935	944	952	961	969	978	986	995	*003	6 5.4
13	71 012	020	029	037	046	054	063	071	079	088	7 6.3
14	096	105	113	122	130	139	147	155	164	172	8 7.2
15	181	189	198	206	214	223	231	240	248	257	9 8.1
16	265	273	282	290	299	307	315	324	332	341	
17	349	357	366	374	383	391	399	408	416	425	
18	433	441	450	458	466	475	483	492	500	508	
19	517	525	533	542	550	559	567	575	584	592	
520	600	609	617	625	634	642	650	659	667	675	
21	684	692	700	709	717	725	734	742	750	759	8
22	767	775	784	792	800	809	817	825	834	842	1 0.8
23	850	858	867	875	883	892	900	908	917	925	2 1.6
24	933	941	950	958	966	975	983	991	999	*008	3 2.4
25	72 016	024	032	041	049	057	066	074	082	090	4 3.2
26	099	107	115	123	132	140	148	156	165	173	5 4.0
27	181	189	198	206	214	222	230	239	247	255	6 4.8
28	263	272	280	288	296	304	313	321	329	337	7 5.6
29	346	354	362	370	378	387	395	403	411	419	8 6.4
530	428	436	444	452	460	469	477	485	493	501	9 7.2
31	509	518	526	534	542	550	558	567	575	583	
32	591	599	607	616	624	632	640	648	656	665	
33	673	681	689	697	705	713	722	730	738	746	
34	754	762	770	779	787	795	803	811	819	827	
35	835	843	852	860	868	876	884	892	900	908	
36	916	925	933	941	949	957	965	973	981	989	7
37	997	*006	*014	*022	*030	*038	*046	*054	*062	*070	1 0.7
38	73 078	086	094	102	111	119	127	135	143	151	2 1.4
39	159	167	175	183	191	199	207	215	223	231	3 2.1
540	239	247	255	263	272	280	288	296	304	312	4 2.8
41	320	328	336	344	352	360	368	376	384	392	5 3.5
42	400	408	416	424	432	440	448	456	464	472	6 4.2
43	480	488	496	504	512	520	528	536	544	552	7 4.9
44	560	568	576	584	592	600	608	616	624	632	8 5.6
45	640	648	656	664	672	679	687	695	703	711	9 6.3
46	719	727	735	743	751	759	767	775	783	791	
47	799	807	815	823	830	838	846	854	862	870	
48	878	886	894	902	910	918	926	933	941	949	
49	957	965	973	981	989	997	*005	*013	*020	*028	
550	74 036	044	052	060	068	076	084	092	099	107	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
550	74 036	044	052	060	068	076	084	092	099	107	
51	115	123	131	139	147	155	162	170	178	186	
52	194	202	210	218	225	233	241	249	257	265	
53	273	280	288	296	304	312	320	327	335	343	
54	351	359	367	374	382	390	398	406	414	421	
55	429	437	445	453	461	468	476	484	492	500	
56	507	515	523	531	539	547	554	562	570	578	
57	586	593	601	609	617	624	632	640	648	656	
58	663	671	679	687	695	702	710	718	726	733	
59	741	749	757	764	772	780	788	796	803	811	
560	819	827	834	842	850	858	865	873	881	889	
61	896	904	912	920	927	935	943	950	958	966	8
62	974	981	989	997	*005	*012	*020	*028	*035	*043	1 0.8
63	75 051	059	066	074	082	089	097	105	113	120	2 1.6
64	128	136	143	151	159	166	174	182	189	197	3 2.4
65	205	213	220	228	236	243	251	259	266	274	4 3.2
66	282	289	297	305	312	320	328	335	343	351	5 4.0
67	358	366	374	381	389	397	404	412	420	427	6 4.8
68	435	442	450	458	465	473	481	488	496	504	7 5.6
69	511	519	526	534	542	549	557	565	572	580	8 6.4
570	587	595	603	610	618	626	633	641	648	656	9 7.2
71	664	671	679	686	694	702	709	717	724	732	
72	740	747	755	762	770	778	785	793	800	808	
73	815	823	831	838	846	853	861	868	876	884	
74	891	899	906	914	921	929	937	944	952	959	
75	967	974	982	989	997	*005	*012	*020	*027	*035	
76	76 042	050	057	065	072	080	087	095	103	110	
77	118	125	133	140	148	155	163	170	178	185	
78	193	200	208	215	223	230	238	245	253	260	
79	268	275	283	290	298	305	313	320	328	335	
580	343	350	358	365	373	380	388	395	403	410	
81	418	425	433	440	448	455	462	470	477	485	7
82	492	500	507	515	522	530	537	545	552	559	1 0.7
83	567	574	582	589	597	604	612	619	626	634	2 1.4
84	641	649	656	664	671	678	686	693	701	708	3 2.1
85	716	723	730	738	745	753	760	768	775	782	4 2.8
86	790	797	805	812	819	827	834	842	849	856	5 3.5
87	864	871	879	886	893	901	908	916	923	930	6 4.2
88	938	945	953	960	967	975	982	989	997	*004	7 4.9
89	77 012	019	026	034	041	048	056	063	070	078	8 5.6
590	085	093	100	107	115	122	129	137	144	151	9 6.3
91	159	166	173	181	188	195	203	210	217	225	
92	232	240	247	254	262	269	276	283	291	298	
93	305	313	320	327	335	342	349	357	364	371	
94	379	386	393	401	408	415	422	430	437	444	
95	452	459	466	474	481	488	495	503	510	517	
96	525	532	539	546	554	561	568	576	583	590	
97	597	605	612	619	627	634	641	648	656	663	
98	670	677	685	692	699	706	714	721	728	735	
99	743	750	757	764	772	779	786	793	801	808	
600	815	822	830	837	844	851	859	866	873	880	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
600	77 815	822	830	837	844	851	859	866	873	880	
01	887	895	902	909	916	924	931	938	945	952	
02	960	967	974	981	988	996	*003	*010	*017	*025	
03	78 032	039	046	053	061	068	075	082	089	097	
04	104	111	118	125	132	140	147	154	161	168	
05	176	183	190	197	204	211	219	226	233	240	
06	247	254	262	269	276	283	290	297	305	312	8
07	319	326	333	340	347	355	362	369	376	383	1 0.8
08	390	398	405	412	419	426	433	440	447	455	2 1.6
09	462	469	476	483	490	497	504	512	519	526	3 2.4
610	533	540	547	554	561	569	576	583	590	597	4 3.2
11	604	611	618	625	633	640	647	654	661	668	5 4.0
12	675	682	689	696	704	711	718	725	732	739	6 4.8
13	746	753	760	767	774	781	789	796	803	810	7 5.6
14	817	824	831	838	845	852	859	866	873	880	8 6.4
15	888	895	902	909	916	923	930	937	944	951	9 7.2
16	958	965	972	979	986	993	*000	*007	*014	*021	
17	79 029	036	043	050	057	064	071	078	085	092	
18	099	106	113	120	127	134	141	148	155	162	
19	169	176	183	190	197	204	211	218	225	232	
620	239	246	253	260	267	274	281	288	295	302	
21	309	316	323	330	337	344	351	358	365	372	7
22	379	386	393	400	407	414	421	428	435	442	1 0.7
23	449	456	463	470	477	484	491	498	505	511	2 1.4
24	518	525	532	539	546	553	560	567	574	581	3 2.1
25	588	595	602	609	616	623	630	637	644	650	4 2.8
26	657	664	671	678	685	692	699	706	713	720	5 3.5
27	727	734	741	748	754	761	768	775	782	789	6 4.2
28	796	803	810	817	824	831	837	844	851	858	7 4.9
29	865	872	879	886	893	900	906	913	920	927	8 5.6
630	934	941	948	955	962	969	975	982	989	996	9 6.3
31	80 003	010	017	024	030	037	044	051	058	065	
32	072	079	085	092	099	106	113	120	127	134	
33	140	147	154	161	168	175	182	188	195	202	
34	209	216	223	229	236	243	250	257	264	271	
35	277	284	291	298	305	312	318	325	332	339	
36	346	353	359	366	373	380	387	393	400	407	6
37	414	421	428	434	441	448	455	462	468	475	1 0.6
38	482	489	496	502	509	516	523	530	536	543	2 1.2
39	550	557	564	570	577	584	591	598	604	611	3 1.8
640	618	625	632	638	645	652	659	665	672	679	4 2.4
41	686	693	699	706	713	720	726	733	740	747	5 3.0
42	754	760	767	774	781	787	794	801	808	814	6 3.6
43	821	828	835	841	848	855	862	868	875	882	7 4.2
44	889	895	902	909	916	922	929	936	943	949	8 4.8
45	956	963	969	976	983	990	996	*003	*010	*017	9 5.4
46	81 023	030	037	043	050	057	064	070	077	084	
47	090	097	104	111	117	124	131	137	144	151	
48	158	164	171	178	184	191	198	204	211	218	
49	224	231	238	245	251	258	265	271	278	285	
650	291	298	305	311	318	325	331	338	345	351	
N.	0	1	2	3	4	5	6	7	8	9	Prop Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
650	81 291	298	305	311	318	325	331	338	345	351	
51	358	365	371	378	385	391	398	405	411	418	
52	425	431	438	445	451	458	465	471	478	485	
53	491	498	505	511	518	525	531	538	544	551	
54	558	564	571	578	584	591	598	604	611	617	
55	624	631	637	644	651	657	664	671	677	684	
56	690	697	704	710	717	723	730	737	743	750	
57	757	763	770	776	783	790	796	803	809	816	
58	823	829	836	842	849	856	862	869	875	882	
59	889	895	902	908	915	921	928	935	941	948	
660	954	961	968	974	981	987	994	*000	*007	*014	
61	82 020	027	033	040	046	053	060	066	073	079	7
62	086	092	099	105	112	119	125	132	138	145	1 0.7
63	151	158	164	171	178	184	191	197	204	210	2 1.4
64	217	223	230	236	243	249	256	263	269	276	3 2.1
65	282	289	295	302	308	315	321	328	334	341	4 2.8
66	347	354	360	367	373	380	387	393	400	406	5 3.5
67	413	419	426	432	439	445	452	458	465	471	6 4.2
68	478	484	491	497	504	510	517	523	530	536	7 4.9
69	543	549	556	562	569	575	582	588	595	601	8 5.6
670	607	614	620	627	633	640	646	653	659	666	9 6.3
71	672	679	685	692	698	705	711	718	724	730	
72	737	743	750	756	763	769	776	782	789	795	
73	802	808	814	821	827	834	840	847	853	860	
74	866	872	879	885	892	898	905	911	918	924	
75	930	937	943	950	956	963	969	975	982	988	
76	995	*001	*008	*014	*020	*027	*033	*040	*046	*052	
77	83 059	065	072	078	085	091	097	104	110	117	
78	123	129	136	142	149	155	161	168	174	181	
79	187	193	200	206	213	219	225	232	238	245	
680	251	257	264	270	276	283	289	296	302	308	
81	315	321	327	334	340	347	353	359	366	372	6
82	378	385	391	398	404	410	417	423	429	436	1 0.6
83	442	448	455	461	467	474	480	487	493	499	2 1.2
84	506	512	518	525	531	537	544	550	556	563	3 1.8
85	569	575	582	588	594	601	607	613	620	626	4 2.4
86	632	639	645	651	658	664	670	677	683	689	5 3.0
87	696	702	708	715	721	727	734	740	746	753	6 3.6
88	759	765	771	778	784	790	797	803	809	816	7 4.2
89	822	828	835	841	847	853	860	866	872	879	8 4.8
690	885	891	897	904	910	916	923	929	935	942	9 5.4
91	948	954	960	967	973	979	985	992	998	*004	
92	84 011	017	023	029	036	042	048	055	061	067	
93	073	080	086	092	098	105	111	117	123	130	
94	136	142	148	155	161	167	173	180	186	192	
95	198	205	211	217	223	230	236	242	248	255	
96	261	267	273	280	286	292	298	305	311	317	
97	323	330	336	342	348	354	361	367	373	379	
98	386	392	398	404	410	417	423	429	435	442	
99	448	454	460	466	473	479	485	491	497	504	
700	510	516	522	528	535	541	547	553	559	566	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
700	84 510	516	522	528	535	541	547	553	559	566	
01	572	578	584	590	597	603	609	615	621	628	
02	634	640	646	652	658	665	671	677	683	689	
03	696	702	708	714	720	726	733	739	745	751	
04	757	763	770	776	782	788	794	800	807	813	
05	819	825	831	837	844	850	856	862	868	874	
06	880	887	893	899	905	911	917	924	930	936	7
07	942	948	954	960	967	973	979	985	991	997	1 0.7
08	85 003	009	016	022	028	034	040	046	052	058	2 1.4
09	065	071	077	083	089	095	101	107	114	120	3 2.1
710	126	132	138	144	150	156	163	169	175	181	4 2.8
11	187	193	199	205	211	217	224	230	236	242	5 3.5
12	248	254	260	266	272	278	285	291	297	303	6 4.2
13	309	315	321	327	333	339	345	352	358	364	7 4.9
14	370	376	382	388	394	400	406	412	418	425	8 5.6
15	431	437	443	449	455	461	467	473	479	485	9 6.3
16	491	497	503	509	516	522	528	534	540	546	
17	552	558	564	570	576	582	588	594	600	606	
18	612	618	625	631	637	643	649	655	661	667	
19	673	679	685	691	697	703	709	715	721	727	
720	733	739	745	751	757	763	769	775	781	788	
21	794	800	806	812	818	824	830	836	842	848	6
22	854	860	866	872	878	884	890	896	902	908	1 0.6
23	914	920	926	932	938	944	950	956	962	968	2 1.2
24	974	980	986	992	998	*004	*010	*016	*022	*028	3 1.8
25	86 034	040	046	052	058	064	070	076	082	088	4 2.4
26	094	100	106	112	118	124	130	136	141	147	5 3.0
27	153	159	165	171	177	183	189	195	201	207	6 3.6
28	213	219	225	231	237	243	249	255	261	267	7 4.2
29	273	279	285	291	297	303	308	314	320	326	8 4.8
730	332	338	344	350	356	362	368	374	380	386	9 5.4
31	392	390	404	410	415	421	427	433	439	445	
32	451	457	463	469	475	481	487	493	499	504	
33	510	516	522	528	534	540	546	552	558	564	
34	570	576	581	587	593	599	605	611	617	623	
35	629	635	641	646	652	658	664	670	676	682	
36	688	694	700	705	711	717	723	729	735	741	5
37	747	753	759	764	770	776	782	788	794	800	1 0.5
38	806	812	817	823	829	835	841	847	853	859	2 1.0
39	864	870	876	882	888	894	900	906	911	917	3 1.5
740	923	929	935	941	947	953	958	964	970	976	4 2.0
41	982	988	994	999	*005	*011	*017	*023	*029	*035	5 2.5
42	87 040	046	052	058	064	070	075	081	087	093	6 3.0
43	099	105	111	116	122	128	134	140	146	151	7 3.5
44	157	163	169	175	181	186	192	198	204	210	8 4.0
45	216	221	227	233	239	245	251	256	262	268	9 4.5
46	274	280	286	291	297	303	309	315	320	326	
47	332	338	344	349	355	361	367	373	379	384	
48	390	396	402	408	413	419	425	431	437	442	
49	448	454	460	466	471	477	483	489	495	500	
750	506	512	518	523	529	535	541	547	552	558	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
750	87 506	512	518	523	529	535	541	547	552	558	
51	564	570	576	581	587	593	599	604	610	616	
52	622	628	633	639	645	651	656	662	668	674	
53	679	685	691	697	703	708	714	720	726	731	
54	737	743	749	754	760	766	772	777	783	789	
55	795	800	806	812	818	823	829	835	841	846	
56	852	858	864	869	875	881	887	892	898	904	
57	910	915	921	927	933	938	944	950	955	961	
58	967	973	978	984	990	996	*001	*007	*013	*018	
59	88 024	030	036	041	047	053	058	064	070	076	
760	081	087	093	098	104	110	116	121	127	133	
61	138	144	150	156	161	167	173	178	184	190	6
62	195	201	207	213	218	224	230	235	241	247	1 0.6
63	252	258	264	270	275	281	287	292	298	304	2 1.2
64	309	315	321	326	332	338	343	349	355	360	3 1.8
65	366	372	377	383	389	395	400	406	412	417	4 2.4
66	423	429	434	440	446	451	457	463	468	474	5 3.0
67	480	485	491	497	502	508	513	519	525	530	6 3.6
68	536	542	547	553	559	564	570	576	581	587	7 4.2
69	593	598	604	610	615	621	627	632	638	643	8 4.8
770	649	655	660	666	672	677	683	689	694	700	9 5.4
71	705	711	717	722	728	734	739	745	750	756	
72	762	767	773	779	784	790	795	801	807	812	
73	818	824	829	835	840	846	852	857	863	868	
74	874	880	885	891	897	902	908	913	919	925	
75	930	936	941	947	953	958	964	969	975	981	
76	986	992	997	*003	*009	*014	*020	*025	*031	*037	
77	89 042	048	053	059	064	070	076	081	087	092	
78	098	104	109	115	120	126	131	137	143	148	
79	154	159	165	170	176	182	187	193	198	204	
780	209	215	221	226	232	237	243	248	254	260	
81	265	271	276	282	287	293	298	304	310	315	5
82	321	326	332	337	343	348	354	360	365	371	1 0.5
83	376	382	387	393	398	404	409	415	421	426	2 1.0
84	432	437	443	448	454	459	465	470	476	481	3 1.5
85	487	492	498	504	509	515	520	526	531	537	4 2.0
86	542	548	553	559	564	570	575	581	586	592	5 2.5
87	597	603	609	614	620	625	631	636	642	647	6 3.0
88	653	658	664	669	675	680	686	691	697	702	7 3.5
89	708	713	719	724	730	735	741	746	752	757	8 4.0
790	763	768	774	779	785	790	796	801	807	812	9 4.5
91	818	823	829	834	840	845	851	856	862	867	
92	873	878	883	889	894	900	905	911	916	922	
93	927	933	938	944	949	955	960	966	971	977	
94	982	988	993	998	*004	*009	*015	*020	*026	*031	
95	90 037	042	048	053	059	064	069	075	080	086	
96	091	097	102	108	113	119	124	129	135	140	
97	146	151	157	162	168	173	179	184	189	195	
98	200	206	211	217	222	227	233	238	244	249	
99	255	260	266	271	276	282	287	293	298	304	
800	309	314	320	325	331	336	342	347	352	358	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
800	90 309	314	320	325	331	336	342	347	352	358	
01	363	369	374	380	385	390	396	401	407	412	
02	417	423	428	434	439	445	450	455	461	466	
03	472	477	482	488	493	499	504	509	515	520	
04	526	531	536	542	547	553	558	563	569	574	
05	580	585	590	596	601	607	612	617	623	628	
06	634	639	644	650	655	660	666	671	677	682	
07	687	693	698	703	709	714	720	725	730	736	
08	741	747	752	757	763	768	773	779	784	789	
09	795	800	806	811	816	822	827	832	838	843	
810	849	854	859	865	870	875	881	886	891	897	
11	902	907	913	918	924	929	934	940	945	950	6
12	956	961	966	972	977	982	988	993	998	*004	1 0.6
13	91 009	014	020	025	030	036	041	046	052	057	2 1.2
14	062	068	073	078	084	089	094	100	105	110	3 1.8
15	116	121	126	132	137	142	148	153	158	164	4 2.4
16	169	174	180	185	190	196	201	206	212	217	5 3.0
17	222	228	233	238	243	249	254	259	265	270	6 3.6
18	275	281	286	291	297	302	307	312	318	323	7 4.2
19	328	334	339	344	350	355	360	365	371	376	8 4.8
820	381	387	392	397	403	408	413	418	424	429	9 5.4
21	434	440	445	450	455	461	466	471	477	482	
22	487	492	498	503	508	514	519	524	529	535	
23	540	545	551	556	561	566	572	577	582	587	
24	593	598	603	609	614	619	624	630	635	640	
25	645	651	656	661	666	672	677	682	687	693	
26	698	703	709	714	719	724	730	735	740	745	
27	751	756	761	766	772	777	782	787	793	798	
28	803	808	814	819	824	829	834	840	845	850	
29	855	861	866	871	876	882	887	892	897	903	
830	908	913	918	924	929	934	939	944	950	955	
31	960	965	971	976	981	986	991	997	*002	*007	5
32	92 012	018	023	028	033	038	044	049	054	059	1 0.5
33	065	070	075	080	085	091	096	101	106	111	2 1.0
34	117	122	127	132	137	143	148	153	158	163	3 1.5
35	169	174	179	184	189	195	200	205	210	215	4 2.0
36	221	226	231	236	241	247	252	257	262	267	5 2.5
37	273	278	283	288	293	298	304	309	314	319	6 3.0
38	324	330	335	340	345	350	355	361	366	371	7 3.5
39	376	381	387	392	397	402	407	412	418	423	8 4.0
840	428	433	438	443	449	454	459	464	469	474	9 4.5
41	480	485	490	495	500	505	511	516	521	526	
42	531	536	542	547	552	557	562	567	572	578	
43	583	588	593	598	603	609	614	619	624	629	
44	634	639	645	650	655	660	665	670	675	681	
45	686	691	696	701	706	711	716	722	727	732	
46	737	742	747	752	758	763	768	773	778	783	
47	788	793	799	804	809	814	819	824	829	834	
48	840	845	850	855	860	865	870	875	881	886	
49	891	896	901	906	911	916	921	927	932	937	
850	942	947	952	957	962	967	973	978	983	988	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
850	92 942	947	952	957	962	967	973	978	983	988	
51	993	998	*003	*008	*013	*018	*024	*029	*034	*039	
52	93 044	049	054	059	064	069	075	080	085	090	
53	095	100	105	110	115	120	125	131	136	141	
54	146	151	156	161	166	171	176	181	186	192	
55	197	202	207	212	217	222	227	232	237	242	
56	247	252	258	263	268	273	278	283	288	293	6
57	298	303	308	313	318	323	328	334	339	344	1 0.6
58	349	354	359	364	369	374	379	384	389	394	2 1.2
59	399	404	409	414	420	425	430	435	440	445	3 1.8
860	450	455	460	465	470	475	480	485	490	495	4 2.4
61	500	505	510	515	520	526	531	536	541	546	5 3.0
62	551	556	561	566	571	576	581	586	591	596	6 3.6
63	601	606	611	616	621	626	631	636	641	646	7 4.2
64	651	656	661	666	671	676	682	687	692	697	8 4.8
65	702	707	712	717	722	727	732	737	742	747	9 5.4
66	752	757	762	767	772	777	782	787	792	797	
67	802	807	812	817	822	827	832	837	842	847	
68	852	857	862	867	872	877	882	887	892	897	
69	902	907	912	917	922	927	932	937	942	947	
870	952	957	962	967	972	977	982	987	992	997	
71	94 002	007	012	017	022	027	032	037	042	047	5
72	052	057	062	067	072	077	082	086	091	096	1 0.5
73	101	106	111	116	121	126	131	136	141	146	2 1.0
74	151	156	161	166	171	176	181	186	191	196	3 1.5
75	201	206	211	216	221	226	231	236	240	245	4 2.0
76	250	255	260	265	270	275	280	285	290	295	5 2.5
77	300	305	310	315	320	325	330	335	340	345	6 3.0
78	349	354	359	364	369	374	379	384	389	394	7 3.5
79	399	404	409	414	419	424	429	433	438	443	8 4.0
880	448	453	458	463	468	473	478	483	488	493	9 4.5
81	498	503	507	512	517	522	527	532	537	542	
82	547	552	557	562	567	571	576	581	586	591	
83	596	601	606	611	616	621	626	630	635	640	
84	645	650	655	660	665	670	675	680	685	689	
85	694	699	704	709	714	719	724	729	734	738	
86	743	748	753	758	763	768	773	778	783	787	4
87	792	797	802	807	812	817	822	827	832	836	1 0.4
88	841	846	851	856	861	866	871	876	880	885	2 0.8
89	890	895	900	905	910	915	919	924	929	934	3 1.2
890	939	944	949	954	959	963	968	973	978	983	4 1.6
91	988	993	998	*002	*007	*012	*017	*022	*027	*032	5 2.0
92	95 036	041	046	051	056	061	066	071	075	080	6 2.4
93	085	090	095	100	105	109	114	119	124	129	7 2.8
94	134	139	143	148	153	158	163	168	173	177	8 3.2
95	182	187	192	197	202	207	211	216	221	226	9 3.6
96	231	236	240	245	250	255	260	265	270	274	
97	279	284	289	294	299	303	308	313	318	323	
98	328	332	337	342	347	352	357	361	366	371	
99	376	381	386	390	395	400	405	410	415	419	
900	424	429	434	439	444	448	453	458	463	468	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
900	95 424	429	434	439	444	448	453	458	463	468	
01	472	477	482	487	492	497	501	506	511	516	
02	521	525	530	535	540	545	550	554	559	564	
03	569	574	578	583	588	593	598	602	607	612	
04	617	622	626	631	636	641	646	650	655	660	
05	665	670	674	679	684	689	694	698	703	708	
06	713	718	722	727	732	737	742	746	751	756	
07	761	766	770	775	780	785	789	794	799	804	
08	809	813	818	823	828	832	837	842	847	852	
09	856	861	866	871	875	880	885	890	895	899	
910	904	909	914	918	923	928	933	938	942	947	
11	952	957	961	966	971	976	980	985	990	995	5
12	999	*004	*009	*014	*019	*023	*028	*033	*038	*042	1 0.5
13	96 047	052	057	061	066	071	076	080	085	090	2 1.0
14	095	099	104	109	114	118	123	128	133	137	3 1.5
15	142	147	152	156	161	166	171	175	180	185	4 2.0
16	190	194	199	204	209	213	218	223	227	232	5 2.5
17	237	242	246	251	256	261	265	270	275	280	6 3.0
18	284	289	294	298	303	308	313	317	322	327	7 3.5
19	332	336	341	346	350	355	360	365	369	374	8 4.0
920	379	384	388	393	398	402	407	412	417	421	9 4.5
21	426	431	435	440	445	450	454	459	464	468	
22	473	478	483	487	492	497	501	506	511	515	
23	520	525	530	534	539	544	548	553	558	562	
24	567	572	577	581	586	591	595	600	605	609	
25	614	619	624	628	633	638	642	647	652	656	
26	661	666	670	675	680	685	689	694	699	703	
27	708	713	717	722	727	731	736	741	745	750	
28	755	759	764	769	774	778	783	788	792	797	
29	802	806	811	816	820	825	830	834	839	844	
930	848	853	858	862	867	872	876	881	886	890	
31	895	900	904	909	914	918	923	928	932	937	4
32	942	946	951	956	960	965	970	974	979	984	1 0.4
33	988	993	997	*002	*007	*011	*016	*021	*025	*030	2 0.8
34	97 035	039	044	049	053	058	063	067	072	077	3 1.2
35	081	086	090	095	100	104	109	114	118	123	4 1.6
36	128	132	137	142	146	151	155	160	165	169	5 2.0
37	174	179	183	188	192	197	202	206	211	216	6 2.4
38	220	225	230	234	239	243	248	253	257	262	7 2.8
39	267	271	276	280	285	290	294	299	304	308	8 3.2
940	313	317	322	327	331	336	340	345	350	354	9 3.6
41	359	364	368	373	377	382	387	391	396	400	
42	405	410	414	419	424	428	433	437	442	447	
43	451	456	460	465	470	474	479	483	488	493	
44	497	502	506	511	516	520	525	529	534	539	
45	543	548	552	557	562	566	571	575	580	585	
46	589	594	598	603	607	612	617	621	626	630	
47	635	640	644	649	653	658	663	667	672	676	
48	681	685	690	695	699	704	708	713	717	722	
49	727	731	736	740	745	749	754	759	763	768	
950	772	777	782	786	791	795	800	804	809	813	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
950	97 772	777	782	786	791	795	800	804	809	813	
51	818	823	827	832	836	841	845	850	855	859	
52	864	868	873	877	882	886	891	896	900	905	
53	909	914	918	923	928	932	937	941	946	950	
54	955	959	964	968	973	978	982	987	991	996	
55	98 000	005	009	014	019	023	028	032	037	041	
56	046	050	055	059	064	068	073	078	082	087	
57	091	096	100	105	109	114	118	123	127	132	
58	137	141	146	150	155	159	164	168	173	177	
59	182	186	191	195	200	204	209	214	218	223	
960	227	232	236	241	245	250	254	259	263	268	
61	272	277	281	286	290	295	299	304	308	313	5
62	318	322	327	331	336	340	345	349	354	358	1 0.5
63	363	367	372	376	381	385	390	394	399	403	2 1.0
64	408	412	417	421	426	430	435	439	444	448	3 1.5
65	453	457	462	466	471	475	480	484	489	493	4 2.0
66	498	502	507	511	516	520	525	529	534	538	5 2.5
67	543	547	552	556	561	565	570	574	579	583	6 3.0
68	588	592	597	601	605	610	614	619	623	628	7 3.5
69	632	637	641	646	650	655	659	664	668	673	8 4.0
970	677	682	686	691	695	700	704	709	713	717	9 4.5
71	722	726	731	735	740	744	749	753	758	762	
72	767	771	776	780	784	789	793	798	802	807	
73	811	816	820	825	829	834	838	843	847	851	
74	856	860	865	869	874	878	883	887	892	896	
75	900	905	909	914	918	923	927	932	936	941	
76	945	949	954	958	963	967	972	976	981	985	
77	989	994	998	*003	*007	*012	*016	*021	*025	*029	
78	99 034	038	043	047	052	056	061	065	069	074	
79	078	083	087	092	096	100	105	109	114	118	
980	123	127	131	136	140	145	149	154	158	162	
81	167	171	176	180	185	189	193	198	202	207	4
82	211	216	220	224	229	233	238	242	247	251	1 0.4
83	255	260	264	269	273	277	282	286	291	295	2 0.8
84	300	304	308	313	317	322	326	330	335	339	3 1.2
85	344	348	352	357	361	366	370	374	379	383	4 1.6
86	388	392	396	401	405	410	414	419	423	427	5 2.0
87	432	436	441	445	449	454	458	463	467	471	6 2.4
88	476	480	484	489	493	498	502	506	511	515	7 2.8
89	520	524	528	533	537	542	546	550	555	559	8 3.2
990	564	568	572	577	581	585	590	594	599	603	9 3.6
91	607	612	616	621	625	629	634	638	642	647	
92	651	656	660	664	669	673	677	682	686	691	
93	695	699	704	708	712	717	721	726	730	734	
94	739	743	747	752	756	760	765	769	774	778	
95	782	787	791	795	800	804	808	813	817	822	
96	826	830	835	839	843	848	852	856	861	865	
97	870	874	878	883	887	891	896	900	904	909	
98	913	917	922	926	930	935	939	944	948	952	
99	957	961	965	970	974	978	983	987	991	996	
1000	00 000	004	009	013	017	022	026	030	035	039	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
1000	000 000	043	087	130	174	217	260	304	347	391	
1001	434	477	521	564	608	651	694	738	781	824	
1002	868	911	954	998	*041	*084	*128	*171	*214	*258	
1003	001 301	344	388	431	474	517	561	604	647	690	44
1004	734	777	820	863	907	950	993	*036	*080	*123	1 4.4
1005	002 166	209	252	296	339	382	425	468	512	555	2 8.8
1006	598	641	684	727	771	814	857	900	943	986	3 13.2
1007	003 029	073	116	159	202	245	288	331	374	417	4 17.6
1008	461	504	547	590	633	676	719	762	805	848	5 22.0
1009	891	934	977	*020	*063	*106	*149	*192	*235	*278	6 26.4
1010	004 321	364	407	450	493	536	579	622	665	708	7 30.8
1011	751	794	837	880	923	966	*009	*052	*095	*138	8 35.2
1012	005 180	223	266	309	352	395	438	481	524	567	9 39.6
1013	609	652	695	738	781	824	867	909	952	995	
1014	006 038	081	124	166	209	252	295	338	380	423	
1015	466	509	552	594	637	680	723	765	808	851	43
1016	894	936	979	*022	*065	*107	*150	*193	*236	*278	1 4.3
1017	007 321	364	406	449	492	534	577	620	662	705	2 8.6
1018	748	790	833	876	918	961	*004	*046	*089	*132	3 12.9
1019	008 174	217	259	302	345	387	430	472	515	558	4 17.2
1020	600	643	685	728	770	813	856	898	941	983	5 21.5
1021	009 026	068	111	153	196	238	281	323	366	408	6 25.8
1022	451	493	536	578	621	663	706	748	791	833	7 30.1
1023	876	918	961	*003	*045	*088	*130	*173	*215	*258	8 34.4
1024	010 300	342	385	427	470	512	554	597	639	681	9 38.7
1025	724	766	809	851	893	936	978	*020	*063	*105	
1026	011 147	190	232	274	317	359	401	444	486	528	
1027	570	613	655	697	740	782	824	866	909	951	42
1028	993	*035	*078	*120	*162	*204	*247	*289	*331	*373	1 4.2
1029	012 415	458	500	542	584	626	669	711	753	795	2 8.4
1030	837	879	922	964	*006	*048	*090	*132	*174	*217	3 12.6
1031	013 259	301	343	385	427	469	511	553	596	638	4 16.8
1032	680	722	764	806	848	890	932	974	*016	*058	5 21.0
1033	014 100	142	184	226	268	310	352	395	437	479	6 25.2
1034	521	563	605	647	689	730	772	814	856	898	7 29.4
1035	940	982	*024	*066	*108	*150	*192	*234	*276	*318	8 33.6
1036	015 360	402	444	485	527	569	611	653	695	737	9 37.8
1037	779	821	863	904	946	988	*030	*072	*114	*156	
1038	016 197	239	281	323	365	407	448	490	532	574	
1039	616	657	699	741	783	824	866	908	950	992	41
1040	017 033	075	117	159	200	242	284	326	367	409	1 4.1
1041	451	492	534	576	618	659	701	743	784	826	2 8.2
1042	868	909	951	993	*034	*076	*118	*159	*201	*243	3 12.3
1043	018 284	326	368	409	451	492	534	576	617	659	4 16.4
1044	700	742	784	825	867	908	950	992	*033	*075	5 20.5
1045	019 116	158	199	241	282	324	366	407	449	490	6 24.6
1046	532	573	615	656	698	739	781	822	864	905	7 28.7
1047	947	988	*030	*071	*113	*154	*195	*237	*278	*320	8 32.8
1048	020 361	403	444	486	527	568	610	651	693	734	9 36.9
1049	775	817	858	900	941	982	*024	*065	*107	*148	
1050	021 189	231	272	313	355	396	437	479	520	561	
N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.

N.	0	1	2	3	4	5	6	7	8	9	Prop. Pts.
1050	021 189	231	272	313	355	396	437	479	520	561	
1051	603	644	685	727	768	809	851	892	933	974	
1052	022 016	057	098	140	181	222	263	305	346	387	
1053	428	470	511	552	593	635	676	717	758	799	**42**
1054	841	882	923	964	*005	*047	*088	*129	*170	*211	1 4.2
1055	023 252	294	335	376	417	458	499	541	582	623	2 8.4
1056	664	705	746	787	828	870	911	952	993	*034	3 12.6
1057	024 075	116	157	198	239	280	321	363	404	445	4 16.8
1058	486	527	568	609	650	691	732	773	814	855	5 21.0
1059	896	937	978	*019	*060	*101	*142	*183	*224	*265	6 25.2
1060	025 306	347	388	429	470	511	552	593	634	674	7 29.4
1061	715	756	797	838	879	920	961	*002	*043	*084	8 33.6
1062	026 125	165	206	247	288	329	370	411	452	492	9 37.8
1063	533	574	615	656	697	737	778	819	860	901	
1064	942	982	*023	*064	*105	*146	*186	*227	*268	*309	
1065	027 350	390	431	472	513	553	594	635	676	716	**41**
1066	757	798	839	879	920	961	*002	*042	*083	*124	1 4.1
1067	028 164	205	246	287	327	368	409	449	490	531	2 8.2
1068	571	612	653	693	734	775	815	856	896	937	3 12.3
1069	978	*018	*059	*100	*140	*181	*221	*262	*303	*343	4 16.4
1070	029 384	424	465	506	546	587	627	668	708	749	5 20.5
1071	789	830	871	911	952	992	*033	*073	*114	*154	6 24.6
1072	030 195	235	276	316	357	397	438	478	519	559	7 28.7
1073	600	640	681	721	762	802	843	883	923	964	8 32.8
1074	031 004	045	085	126	166	206	247	287	328	368	9 36.9
1075	408	449	489	530	570	610	651	691	732	772	
1076	812	853	893	933	974	*014	*054	*095	*135	*175	
1077	032 216	256	296	337	377	417	458	498	538	578	**40**
1078	619	659	699	740	780	820	860	901	941	981	1 4.0
1079	033 021	062	102	142	182	223	263	303	343	384	2 8.0
1080	424	464	504	544	585	625	665	705	745	785	3 12.0
1081	826	866	906	946	986	*027	*067	*107	*147	*187	4 16.0
1082	034 227	267	308	348	388	428	468	508	548	588	5 20.0
1083	628	669	709	749	789	829	869	909	949	989	6 24.0
1084	035 029	069	109	149	190	230	270	310	350	390	7 28.0
1085	430	470	510	550	590	630	670	710	750	790	8 32.0
1086	830	870	910	950	990	*030	*070	*110	*150	*190	9 36.0
1087	036 230	269	309	349	389	429	469	509	549	589	
1088	629	669	709	749	789	828	868	908	948	988	
1089	037 028	068	108	148	187	227	267	307	347	387	**39**
1090	426	466	506	546	586	626	665	705	745	785	1 3.9
1091	825	865	904	944	984	*024	*064	*103	*143	*183	2 7.8
1092	038 223	262	302	342	382	421	461	501	541	580	3 11.7
1093	620	660	700	739	779	819	859	898	938	978	4 15.6
1094	039 017	057	097	136	176	216	255	295	335	374	5 19.5
1095	414	454	493	533	573	612	652	692	731	771	6 23.4
1096	811	850	890	929	969	*009	*048	*088	*127	*167	7 27.3
1097	040 207	246	286	325	365	405	444	484	523	563	8 31.2
1098	602	642	681	721	761	800	840	879	919	958	9 35.1
1099	998	*037	*077	*116	*156	*195	*235	*274	*314	*353	
1100	041 393	432	472	511	551	590	630	669	708	748	
N.	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Prop. Pts.**

TABLE II

—o—

LOGARITHMS

OF THE

TRIGONOMETRIC FUNCTIONS

FOR

EACH MINUTE

0°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.		
0	—		—		—	0.00 000	60			
1	6.46 373	30103	6.46 373	30103	3.53 627	0.00 000	59	3476	3218	2997
2	6.76 476	17609	6.76 476	17609	3.23 524	0.00 000	58	.1 348	322	300
3	6.94 085	12494	6.94 085	12494	3.05 915	0.00 000	57	.2 695	644	599
4	7.06 579	9691	7.06 579	9691	2.93 421	0.00 000	56	.3 1043	965	899
5	7.16 270	7918	7.16 270	7918	2.83 730	0.00 000	55	.4 1390	1287	1199
6	7.24 188	6694	7.24 188	6694	2.75 812	0.00 000	54	.5 1738	1609	1498
7	7.30 882	5800	7.30 882	5800	2.69 118	0.00 000	53			
8	7.36 682	5115	7.36 682	5115	2.63 318	0.00 000	52	2802	2633	2483
9	7.41 797	4576	7.41 797	4576	2.58 203	0.00 000	51	.1 280	263	248
10	7.46 373	4139	7.46 373	4139	2.53 627	0.00 000	50	.2 560	527	497
11	7.50 512	3779	7.50 512	3779	2.49 488	0.00 000	49	.3 841	790	745
12	7.54 291	3476	7.54 291	3476	2.45 709	0.00 000	48	.4 1121	1053	993
13	7.57 767	3218	7.57 767	3219	2.42 233	0.00 000	47	.5 1401	1316	1242
14	7.60 985	2997	7.60 986	2996	2.39 014	0.00 000	46			
15	7.63 982	2802	7.63 982	2803	2.36 018	0.00 000	45	2227	2021	1848
16	7.66 784	2633	7.66 785	2633	2.33 215	0.00 000	44	.1 223	202	185
17	7.69 417	2483	7.69 418	2482	2.30 582	9.99 999	43	.2 445	404	370
18	7.71 900	2348	7.71 900	2348	2.28 100	9.99 999	42	.3 668	606	554
19	7.74 248	2227	7.74 248	2228	2.25 752	9.99 999	41	.4 891	808	739
20	7.76 475	2119	7.76 476	2119	2.23 524	9.99 999	40	.5 1113	1010	924
21	7.78 594	2021	7.78 595	2020	2.21 405	9.99 999	39	1704	1579	1472
22	7.80 615	1930	7.80 615	1931	2.19 385	9.99 999	38	.1 170	158	147
23	7.82 545	1848	7.82 546	1848	2.17 454	9.99 999	37	.2 341	316	294
24	7.84 393	1773	7.84 394	1773	2.15 606	9.99 999	36	.3 511	474	442
25	7.86 166	1704	7.86 167	1704	2.13 833	9.99 999	35	.4 682	632	589
26	7.87 870	1639	7.87 871	1639	2.12 129	9.99 999	34	.5 852	789	736
27	7.89 509	1579	7.89 510	1579	2.10 490	9.99 999	33			
28	7.91 088	1524	7.91 089	1524	2.08 911	9.99 999	32	1379	1297	1223
29	7.92 612	1472	7.92 613	1473	2.07 387	9.99 998	31	.1 138	130	122
30	7.94 084	1424	7.94 086	1424	2.05 914	9.99 998	30	.2 276	259	245
31	7.95 508	1379	7.95 510	1379	2.04 490	9.99 998	29	.3 414	389	367
32	7.96 887	1336	7.96 889	1336	2.03 111	9.99 998	28	.4 552	519	489
33	7.98 223	1297	7.98 225	1297	2.01 775	9.99 998	27	.5 690	649	612
34	7.99 520	1259	7.99 522	1259	2.00 478	9.99 998	26			
35	8.00 779	1223	8.00 781	1223	1.99 219	9.99 998	25	1158	1100	1046
36	8.02 002	1190	8.02 004	1190	1.97 996	9.99 998	24	.1 116	110	105
37	8.03 192	1158	8.03 194	1159	1.96 806	9.99 997	23	.2 232	220	209
38	8.04 350	1128	8.04 353	1128	1.95 647	9.99 997	22	.3 347	330	314
39	8.05 478	1100	8.05 481	1100	1.94 519	9.99 997	21	.4 463	440	418
40	8.06 578	1072	8.06 581	1072	1.93 419	9.99 997	20	.5 579	550	523
41	8.07 650	1046	8.07 653	1047	1.92 347	9.99 997	19			
42	8.08 696	1022	8.08 700	1022	1.91 300	9.99 997	18	999	954	914
43	8.09 718	999	8.09 722	998	1.90 278	9.99 997	17	.1 100	95	91
44	8.10 717	976	8.10 720	976	1.89 280	9.99 996	16	.2 200	191	183
45	8.11 693	954	8.11 696	955	1.88 304	9.99 996	15	.3 300	286	274
46	8.12 647	934	8.12 651	934	1.87 349	9.99 996	14	.4 400	382	366
47	8.13 581	914	8.13 585	915	1.86 415	9.99 996	13	.5 500	477	457
48	8.14 495	896	8.14 500	895	1.85 500	9.99 996	12			
49	8.15 391	877	8.15 395	878	1.84 605	9.99 996	11	877	843	812
50	8.16 268	860	8.16 273	860	1.83 727	9.99 995	10	.1 88	84	81
51	8.17 128	843	8.17 133	843	1.82 867	9.99 995	9	.2 175	169	162
52	8.17 971	827	8.17 976	828	1.82 024	9.99 995	8	.3 263	253	244
53	8.18 798	812	8.18 804	812	1.81 196	9.99 995	7	.4 351	337	325
54	8.19 610	797	8.19 616	797	1.80 384	9.99 995	6	.5 438	422	406
55	8.20 407	782	8.20 413	782	1.79 587	9.99 994	5	782	755	730
56	8.21 189	769	8.21 195	769	1.78 805	9.99 994	4	.1 78	75	73
57	8.21 958	755	8.21 964	756	1.78 036	9.99 994	3	.2 156	151	146
58	8.22 713	743	8.22 720	742	1.77 280	9.99 994	2	.3 235	226	219
59	8.23 456	.730	8.23 462	730	1.76 538	9.99 994	1	.4 313	302	292
60	8.24 186		8.24 192		1.75 808	9.99 993	0	.5 391	377	365
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.		

89°

1°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.		
0	8.24 186		8.24 192		1.75 808	9.99 993	60			
1	8.24 903	717	8.24 910	718	1.75 090	9.99 993	59		717	695	673
2	8.25 609	706	8.25 616	706	1.74 384	9.99 993	58	.1	71.7	69.5	67.3
3	8.26 304	695	8.26 312	696	1.73 688	9.99 993	57	.2	143.4	139.0	134.6
4	8.26 988	684	8.26 996	684	1.73 004	9.99 992	56	.3	215.1	208.5	201.9
5	8.27 661	673	8.27 669	673	1.72 331	9.99 992	55	.4	286.8	278.0	269.2
6	8.28 324	663	8.28 332	663	1.71 668	9.99 992	54	.5	358.5	347.5	336.5
7	8.28 977	653	8.28 986	654	1.71 014	9.99 992	53				
8	8.29 621	644	8.29 629	643	1.70 371	9.99 992	52		653	634	616
9	8.30 253	634	8.30 263	634	1.69 737	9.99 991	51	.1	65.3	63.4	61.6
10	8.30 879	624	8.30 888	625	1.69 112	9.99 991	50	.2	130.6	126.8	123.2
11	8.31 495	616	8.31 505	617	1.68 495	9.99 991	49	.3	195.9	190.2	184.8
12	8.32 103	608	8.32 112	607	1.67 888	9.99 990	48	.4	261.2	253.6	246.4
13	8.32 702	599	8.32 711	599	1.67 289	9.99 990	47	.5	326.5	317.0	308.0
14	8.33 292	590	8.33 302	591	1.66 698	9.99 990	46				
15	8.33 875	583	8.33 886	584	1.66 114	9.99 990	45		599	583	568
16	8.34 450	575	8.34 461	575	1.65 539	9.99 989	44	.1	59.9	58.3	56.8
17	8.35 018	568	8.35 029	568	1.64 971	9.99 989	43	.2	119.8	116.6	113.6
18	8.35 578	560	8.35 590	561	1.64 410	9.99 989	42	.3	179.7	174.9	170.4
19	8.36 131	553	8.36 143	553	1.63 857	9.99 989	41	.4	239.6	233.2	227.2
20	8.36 678	547	8.36 689	546	1.63 311	9.99 988	40	.5	299.5	291.5	284.0
21	8.37 217	539	8.37 229	540	1.62 771	9.99 988	39				
22	8.37 750	533	8.37 762	533	1.62 238	9.99 988	38		553	539	526
23	8.38 276	526	8.38 289	527	1.61 711	9.99 987	37	.1	55.3	53.9	52.6
24	8.38 796	520	8.38 809	520	1.61 191	9.99 987	36	.2	110.6	107.8	105.2
25	8.39 310	514	8.39 323	514	1.60 677	9.99 987	35	.3	165.9	161.7	157.8
26	8.39 818	508	8.39 832	509	1.60 168	9.99 986	34	.4	221.2	215.6	210.4
27	8.40 320	502	8.40 334	502	1.59 666	9.99 986	33	.5	276.5	269.5	263.0
28	8.40 816	496	8.40 830	496	1.59 170	9.99 986	32				
29	8.41 307	491	8.41 321	491	1.58 679	9.99 985	31		514	502	490
30	8.41 792	485	8.41 807	486	1.58 193	9.99 985	30	.1	51.4	50.2	49
31	8.42 272	480	8.42 287	480	1.57 713	9.99 985	29	.2	102.8	100.4	98
32	8.42 746	474	8.42 762	475	1.57 238	9.99 984	28	.3	154.2	150.6	147
33	8.43 216	470	8.43 232	470	1.56 768	9.99 984	27	.4	205.6	200.8	196
34	8.43 680	464	8.43 696	464	1.56 304	2.99 984	26	.5	257.0	251.0	245
35	8.44 139	459	8.44 156	460	1.55 844	9.99 983	25		480	470	460
36	8.44 594	455	8.44 611	455	1.55 389	9.99 983	24	.1	48	47	46
37	8.45 044	450	8.45 061	450	1.54 939	9.99 983	23	.2	96	94	92
38	8.45 489	445	8.45 507	446	1.54 493	9.99 982	22	.3	144	141	138
39	8.45 930	441	8.45 948	441	1.54 052	9.99 982	21	.4	192	188	184
40	8.46 366	436	8.46 385	437	1.53 615	9.99 982	20	.5	240	235	230
41	8.46 799	433	8.46 817	432	1.53 183	9.99 981	19				
42	8.47 226	427	8.47 245	428	1.52 755	9.99 981	18		450	440	430
43	8.47 650	424	8.47 669	424	1.52 331	9.99 981	17	.1	45	44	43
44	8.48 069	419	8.48 089	420	1.51 911	9.99 980	16	.2	90	88	86
45	8.48 485	416	8.48 505	416	1.51 495	9.99 980	15	.3	135	132	129
46	8.48 896	411	8.48 917	412	1.51 083	9.99 979	14	.4	180	176	172
47	8.49 304	408	8.49 325	408	1.50 675	9.99 979	13	.5	225	220	215
48	8.49 708	404	8.49 729	404	1.50 271	9.99 979	12				
49	8.50 108	400	8.50 130	401	1.49 870	9.99 978	11		420	410	400
50	8.50 504	396	8.50 527	397	1.49 473	9.99 978	10	.1	42	41	40
51	8.50 897	393	8.50 920	393	1.49 080	9.99 977	9	.2	84	82	80
52	8.51 287	390	8.51 310	390	1.48 690	9.99 977	8	.3	126	123	120
53	8.51 673	386	8.51 696	386	1.48 304	9.99 977	7	.4	168	164	160
54	8.52 055	382	8.52 079	383	1.47 921	9.99 976	6	.5	210	205	200
55	8.52 434	379	8.52 459	380	1.47 541	9.99 976	5		390	380	370
56	8.52 810	376	8.52 835	376	1.47 165	9.99 975	4	.1	39	38	37
57	8.53 183	373	8.53 208	373	1.46 792	9.99 975	3	.2	78	76	74
58	8.53 552	369	8.53 578	370	1.46 422	9.99 974	2	.3	117	114	111
59	8.53 919	367	8.53 945	367	1.46 055	9.99 974	1	.4	156	152	148
60	8.54 282	363	8.54 308	363	1.45 692	9.99 974	0	.5	195	190	185
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.		

2°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.		
0	8 54 282		8.54 308		1.45 692	9.99 974	60			
1	8.54 642	360	8.54 669	361	1.45 331	9.99 973	59		360	350	340
2	8.54 999	357	8.55 027	358	1.44 973	9.99 973	58	.1	36	35	34
3	8.55 354	355	8.55 382	355	1.44 618	9.99 972	57	.2	72	70	68
4	8.55 705	351	8.55 734	352	1.44 266	9.99 972	56	.3	108	105	102
5	8.56 054	349	8.56 083	349	1.43 917	9.99 971	55	.4	144	140	136
6	8.56 400	346	8.56 429	346	1.43 571	9.99 971	54	.5	180	175	170
7	8.56 743	343	8.56 773	344	1.43 227	9.99 970	53	.6	216	210	204
8	8.57 084	341	8.57 114	341	1.42 886	9.99 970	52	.7	252	245	238
9	8.57 421	337	8.57 452	338	1.42 548	9.99 969	51	.8	288	280	272
10	8.57 757	336	8.57 788	336	1.42 212	9.99 969	50	.9	324	315	306
11	8.58 089	332	8.58 121	333	1.41 879	9.99 968	49		330	320	310
12	8.58 419	330	8.58 451	330	1.41 549	9.99 968	48	.1	33	32	31
13	8.58 747	328	8.58 779	328	1.41 221	9.99 967	47	.2	66	64	62
14	8.59 072	325	8.59 105	326	1.40 895	9.99 967	46	.3	99	96	93
15	8.59 395	323	8.59 428	323	1.40 572	9.99 967	45	.4	132	128	124
16	8.59 715	320	8.59 749	321	1.40 251	9.99 966	44	.5	165	160	155
17	8.60 033	318	8.60 068	319	1.39 932	9.99 966	43	.6	198	192	186
18	8.60 349	316	8.60 384	316	1.39 616	9.99 965	42	.7	231	224	217
19	8.60 662	313	8.60 698	314	1.39 302	9.99 964	41	.8	264	256	248
20	8.60 973	311	8.61 009	311	1.38 991	9.99 964	40	.9	297	288	279
21	8.61 282	309	8.61 319	310	1.38 681	9.99 963	39		300	290	285
22	8.61 589	307	8.61 626	307	1.38 374	9 99 963	38	.1	30	29	28.5
23	8.61 894	305	8.61 931	305	1.38 069	9.99 962	37	.2	60	58	57.0
24	8.62 196	302	8.62 234	303	1.37 766	9 99 962	36	.3	90	87	85.5
25	8.62 497	301	8.62 535	301	1.37 465	9.99 961	35	.4	120	116	114.0
26	8.62 795	298	8.62 834	299	1.37 166	9 99 961	34	.5	150	145	142.5
27	8.63 091	296	8.63 131	297	1.36 869	9.99 960	33	.6	180	174	171.0
28	8.63 385	294	8.63 426	295	1.36 574	9.99 960	32	.7	210	203	199.5
29	8.63 678	293	8.63 718	292	1.36 282	9.99 959	31	.8	240	232	228.0
30	8.63 968	290	8.64 009	291	1.35 991	9.99 959	30	.9	270	261	256.5
31	8.64 256	288	8.64 298	289	1.35 702	9.99 958	29		280	275	270
32	8.64 543	287	8.64 585	287	1.35 415	9.99 958	28	.1	28.0	27.5	27.0
33	8.64 827	284	8.64 870	285	1.35 130	9.99 957	27	.2	56.0	55.0	54.0
34	8.65 110	283	8.65 154	284	1.34 846	9.99 956	26	.3	84.0	82.5	81.0
35	8.65 391	281	8.65 435	281	1.34 565	9.99 956	25	.4	112.0	110.0	108.0
36	8.65 670	279	8.65 715	280	1.34 285	9.99 955	24	.5	140.0	137.5	135.0
37	8.65 947	277	8.65 993	278	1.34 007	9 99 955	23	.6	168.0	165.0	162.0
38	8.66 223	276	8.66 269	276	1.33 731	9 99 954	22	.7	196.0	192.5	189.0
39	8.66 497	274	8.66 543	274	1.33 457	9.99 954	21	.8	224.0	220.0	216.0
40	8.66 769	272	8.66 816	273	1.33 184	9.99 953	20	.9	252.0	247.5	243.0
41	8.67 039	270	8.67 087	271	1.32 913	9.99 952	19		265	260	255
42	8.67 308	269	8.67 356	269	1.32 644	9.99 952	18	.1	26.5	26.0	25.5
43	8.67 575	267	8.67 624	268	1.32 376	9.99 951	17	.2	53.0	52.0	51.0
44	8.67 841	266	8.67 890	266	1.32 110	9.99 951	16	.3	79.5	78.0	76.5
45	8.68 104	263	8.68 154	264	1.31 846	9.99 950	15	.4	106.0	104.0	102.0
46	8.68 367	263	8.68 417	263	1.31 583	9.99 949	14	.5	132.5	130.0	127.5
47	8.68 627	260	8.68 678	261	1.31 322	9.99 949	13	.6	159.0	156.0	153.0
48	8.68 886	259	8.68 938	260	1.31 062	9.99 948	12	.7	185.5	182.0	178.5
49	8.69 144	258	8.69 196	258	1 30 804	9.99 948	11	.8	212.0	208.0	204.0
50	8.69 400	256	8.69 453	257	1.30 547	9.99 947	10	.9	238.5	234.0	229.5
51	8.69 654	254	8.69 708	255	1.30 292	9.99 946	9		250	245	240
52	8.69 907	253	8.69 962	254	1.30 038	9.99 946	8	.1	.25.0	.24.5	.24.0
53	8.70 159	252	8.70 214	252	1.29 786	9.99 945	7	.2	.50.0	.49.0	.48.0
54	8.70 409	250	8.70 465	251	1.29 535	9.99 944	6	.3	.75.0	.73.5	.72.0
55	8.70 658	249	8.70 714	249	1.29 286	9.99 944	5	.4	100.0	198.0	.96.0
56	8.70 905	247	8.70 962	248	1.29 038	9.99 943	4	.5	125.0	122.5	120.0
57	8.71 151	246	8.71 208	246	1.28 792	9.99 942	3	.6	150.0	147.0	144.0
58	8.71 395	244	8.71 453	245	1.28 547	9.99 942	2	.7	175.0	171.5	168.0
59	8.71 638	243	8.71 697	244	1.28 303	9.99 941	1	.8	200.0	196.0	192.0
60	8.71 880	242	8.71 940	243	1.28 060	9.99 940	0	.9	225.0	220.5	216.0
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.		

3°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.			
0	8.71 880	240	8.71 940	241	1.28 060	9.99 940	60				
1	8.72 120	239	8.72 181	239	1.27 819	9.99 940	59		238	234	229
2	8.72 359	238	8.72 420	239	1.27 580	9.99 939	58	.1	23.8	23.4	22.9
3	8.72 597	237	8.72 659	237	1.27 341	9.99 938	57	.2	47.6	46.8	45.8
4	8.72 834	235	8.72 896	236	1.27 104	9.99 938	56	.3	71.4	70.2	68.7
5	8.73 069	234	8.73 132	234	1.26 868	9.99 937	55	.4	95.2	93.6	91.6
6	8.73 303	232	8.73 366	234	1.26 634	9.99 936	54	.5	119.0	117.0	114.5
7	8.73 535	232	8.73 600	232	1.26 400	9.99 936	53	.6	142.8	140.4	137.4
8	8.73 767	230	8.73 832	231	1.26 168	9.99 935	52	.7	166.6	163.8	160.3
9	8.73 997	229	8.74 063	229	1.25 937	9.99 934	51	.8	190.4	187.2	183.2
10	8.74 226	228	8.74 292	229	1.25 708	9.99 934	50	.9	214.2	210.6	206.1
11	8.74 454	226	8.74 521	227	1.25 479	9.99 933	49		225	220	216
12	8.74 680	226	8.74 748	226	1.25 252	9.99 932	48	.1	22.5	22.0	21.6
13	8.74 906	224	8.74 974	225	1.25 026	9.99 932	47	.2	45.0	44.0	43.2
14	8.75 130	223	8.75 199	224	1.24 801	9.99 931	46	.3	67.5	66.0	64.8
15	8.75 353	222	8.75 423	222	1.24 577	9.99 930	45	.4	90.0	88.0	86.4
16	8.75 575	220	8.75 645	222	1.24 355	9.99 929	44	.5	112.5	110.0	108.0
17	8.75 795	220	8.75 867	220	1.24 133	9.99 929	43	.6	135.0	132.0	129.6
18	8.76 015	219	8.76 087	219	1.23 913	9.99 928	42	.7	157.5	154.0	151.2
19	8.76 234	217	8.76 306	219	1.23 694	9.99 927	41	.8	180.0	176.0	172.8
20	8.76 451	216	8.76 525	217	1.23 475	9.99 926	40	.9	202.5	198.0	194.4
21	8.76 667	216	8.76 742	216	1.23 258	9.99 926	39		212	208	204
22	8.76 883	214	8.76 958	215	1.23 042	9.99 925	38	.1	21.2	20.8	20.4
23	8.77 097	213	8.77 173	214	1.22 827	9.99 924	37	.2	42.4	41.6	40.8
24	8.77 310	212	8.77 387	213	1.22 613	9.99 923	36	.3	63.6	62.4	61.2
25	8.77 522	211	8.77 600	211	1.22 400	9.99 923	35	.4	84.8	83.2	81.6
26	8.77 733	210	8.77 811	211	1.22 189	9.99 922	34	.5	106.0	104.0	102.0
27	8.77 943	209	8.78 022	210	1.21 978	9.99 921	33	.6	127.2	124.8	122.4
28	8.78 152	208	8.78 232	209	1.21 768	9.99 920	32	.7	148.4	145.6	142.8
29	8.78 360	208	8.78 441	208	1.21 559	9.99 920	31	.8	169.6	166.4	163.2
30	8.78 568	206	8.78 649	206	1.21 351	9.99 919	30	.9	190.8	187.2	183.6
31	8.78 774	205	8.78 855	206	1.21 145	9.99 918	29		201	197	193
32	8.78 979	204	8.79 061	206	1.20 939	9.99 917	28	.1	20.1	19.7	19.3
33	8.79 183	203	8.79 266	205	1.20 734	9.99 917	27	.2	40.2	39.4	38.6
34	8.79 386	202	8.79 470	204	1.20 530	9.99 916	26	.3	60.3	59.1	57.9
35	8.79 588	201	8.79 673	203	1.20 327	9.99 915	25	.4	80.4	78.8	77.2
36	8.79 789	201	8.79 875	202	1.20 125	9.99 914	24	.5	100.5	98.5	96.5
37	8.79 990	199	8.80 076	201	1.19 924	9.99 913	23	.6	120.6	118.2	115.8
38	8.80 189	199	8.80 277	201	1.19 723	9.99 913	22	.7	140.7	137.9	135.1
39	8.80 388	197	8.80 476	199	1.19 524	9.99 912	21	.8	160.8	157.6	154.4
40	8.80 585	197	8.80 674	198	1.19 326	9.99 911	20	.9	180.9	177.3	173.7
41	8.80 782	196	8.80 872	198	1.19 128	9.99 910	19		189	185	181
42	8.80 978	195	8.81 068	196	1.18 932	9.99 909	18	.1	18.9	18.5	18.1
43	8.81 173	194	8.81 264	196	1.18 736	9.99 909	17	.2	37.8	37.0	36.2
44	8.81 367	193	8.81 459	195	1.18 541	9.99 908	16	.3	56.7	55.5	54.3
45	8.81 560	192	8.81 653	194	1.18 347	9.99 907	15	.4	75.6	74.0	72.4
46	8.81 752	192	8.81 846	193	1.18 154	9.99 906	14	.5	94.5	92.5	90.5
47	8.81 944	190	8.82 038	192	1.17 962	9.99 905	13	.6	113.4	111.0	108.6
48	8.82 134	190	8.82 230	192	1.17 770	9.99 904	12	.7	132.3	129.5	126.7
49	8.82 324	189	8.82 420	190	1.17 580	9.99 904	11	.8	151.2	148.0	144.8
50	8.82 513	188	8.82 610	190	1.17 390	9.99 903	10	.9	170.1	166.5	162.9
51	8.82 701	187	8.82 799	189	1.17 201	9.99 902	9		4	3	2	1
52	8.82 888	187	8.82 987	188	1.17 013	9.99 901	8	.1	0.4	0.3	0.2	0.1
53	8.83 075	186	8.83 175	188	1.16 825	9.99 900	7	.2	0.8	0.6	0.4	0.2
54	8.83 261	185	8.83 361	186	1.16 639	9.99 899	6	.3	1.2	0.9	0.6	0.3
55	8.83 446	184	8.83 547	186	1.16 453	9.99 898	5	.4	1.6	1.2	0.8	0.4
56	8.83 630	183	8.83 732	185	1.16 268	9.99 898	4	.5	2.0	1.5	1.0	0.5
57	8.83 813	183	8.83 916	184	1.16 084	9.99 897	3	.6	2.4	1.8	1.2	0.6
58	8.83 996	181	8.84 100	184	1.15 900	9.99 896	2	.7	2.8	2.1	1.4	0.7
59	8.84 177	181	8.84 282	182	1.15 718	9.99 895	1	.8	3.2	2.4	1.6	0.8
60	8.84 358		8.84 464	182	1.15 536	9.99 894	0	.9	3.6	2.7	1.8	0.9
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.			

4°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.		
0	8.84 358	181	8.84 464	182	1.15 536	9.99 894	60			
1	8.84 539	179	8.84 646	180	1.15 354	9.99 893	59		181	179	177
2	8.84 718	179	8.84 826	180	1.15 174	9.99 892	58	.1	18.1	17.9	17.7
3	8.84 897	178	8.85 006	179	1.14 994	9.99 891	57	.2	36.2	35.8	35.4
4	8.85 075	177	8.85 185	178	1.14 815	9.99 891	56	.3	54.3	53.7	53.1
5	8.85 252	177	8.85 363	177	1.14 637	9.99 890	55	.4	72.4	71.6	70.8
6	8.85 429	176	8.85 540	177	1.14 460	9.99 889	54	.5	90.5	89.5	88.5
7	8.85 605	175	8.85 717	176	1.14 283	9.99 888	53	.6	108.6	107.4	106.2
8	8.85 780	175	8.85 893	176	1.14 107	9.99 887	52	.7	126.7	125.3	123.9
9	8.85 955	173	8.86 069	174	1.13 931	9.99 886	51	.8	144.8	143.2	141.6
10	8.86 128	173	8.86 243	174	1.13 757	9.99 885	50	.9	162.9	161.1	159.3
11	8.86 301	173	8.86 417	174	1.13 583	9.99 884	49		175	173	171
12	8.86 474	171	8.86 591	172	1.13 409	9.99 883	48	.1	17.5	17.3	17.1
13	8.86 645	171	8.86 763	172	1.13 237	9.99 882	47	.2	35.0	34.6	34.2
14	8.86 816	171	8.86 935	171	1.13 065	9.99 881	46	.3	52.5	51.9	51.3
15	8.86 987	169	8.87 106	171	1.12 894	9.99 880	45	.4	70.0	69.2	68.4
16	8.87 156	169	8.87 277	171	1.12 723	9.99 879	44	.5	87.5	86.5	85.5
17	8.87 325	169	8.87 447	170	1.12 553	9.99 879	43	.6	105.0	103.8	102.6
18	8.87 494	167	8.87 616	169	1.12 384	9.99 878	42	.7	122.5	121.1	119.7
19	8.87 661	168	8.87 785	169	1.12 215	9.99 877	41	.8	140.0	138.4	136.8
20	8.87 829	166	8.87 953	168	1.12 047	9.99 876	40	.9	157.5	155.7	153.9
21	8.87 995	166	8.88 120	167	1.11 880	9.99 875	39		168	166	164
22	8.88 161	165	8.88 287	167	1.11 713	9.99 874	38	.1	16.8	16.6	16.4
23	8.88 326	164	8.88 453	166	1.11 547	9.99 873	37	.2	33.6	33.2	32.8
24	8.88 490	164	8.88 618	165	1.11 382	9.99 872	36	.3	50.4	49.8	49.2
25	8.88 654	163	8.88 783	165	1.11 217	9.99 871	35	.4	67.2	66.4	65.6
26	8.88 817	163	8.88 948	165	1.11 052	9.99 870	34	.5	84.0	83.0	82.0
27	8.88 980	162	8.89 111	163	1.10 889	9.99 869	33	.6	100.8	99.6	98.4
28	8.89 142	162	8.89 274	163	1.10 726	9.99 868	32	.7	117.6	116.2	114.8
29	8.89 304	160	8.89 437	163	1.10 563	9.99 867	31	.8	134.4	132.8	131.2
30	8.89 464	161	8.89 598	161	1.10 402	9.99 866	30	.9	151.2	149.4	147.6
31	8.89 625	159	8.89 760	162	1.10 240	9.99 865	29		162	159	157
32	8.89 784	159	8.89 920	160	1.10 080	9.99 864	28	.1	16.2	15.9	15.7
33	8.89 943	159	8.90 080	160	1.09 920	9.99 863	27	.2	32.4	31.8	31.4
34	8.90 102	158	8.90 240	160	1.09 760	9.99 862	26	.3	48.6	47.7	47.1
35	8.90 260	157	8.90 399	159	1.09 601	9.99 861	25	.4	64.8	63.6	62.8
36	8.90 417	157	8.90 557	158	1.09 443	9.99 860	24	.5	81.0	79.5	78.5
37	8.90 574	156	8.90 715	158	1.09 285	9.99 859	23	.6	97.2	95.4	94.2
38	8.90 730	155	8.90 872	157	1.09 128	9.99 858	22	.7	113.4	111.3	109.9
39	8.90 885	155	8.91 029	157	1.08 971	9.99 857	21	.8	129.6	127.2	125.6
40	8.91 040	155	8.91 185	156	1.08 815	9.99 856	20	.9	145.8	143.1	141.3
41	8.91 195	154	8.91 340	155	1.08 660	9.99 855	19		155	153	151
42	8.91 349	153	8.91 495	155	1.08 505	9.99 854	18	.1	15.5	15.3	15.1
43	8.91 502	153	8.91 650	155	1.08 350	9.99 853	17	.2	31.0	30.6	30.2
44	8.91 655	152	8.91 803	153	1.08 197	9.99 852	16	.3	46.5	45.9	45.3
45	8.91 807	152	8.91 957	154	1.08 043	9.99 851	15	.4	62.0	61.2	60.4
46	8.91 959	151	8.92 110	153	1.07 890	9.99 850	14	.5	77.5	76.5	75.5
47	8.92 110	151	8.92 262	152	1.07 738	9.99 848	13	.6	93.0	91.8	90.6
48	8.92 261	150	8.92 414	152	1.07 586	9.99 847	12	.7	108.5	107.1	105.7
49	8.92 411	150	8.92 565	151	1.07 435	9.99 846	11	.8	124.0	122.4	120.8
50	8.92 561	149	8.92 716	151	1.07 284	9.99 845	10	.9	139.5	137.7	135.9
51	8.92 710	149	8.92 866	150	1.07 134	9.99 844	9		149	147	1
52	8.92 859	148	8.93 016	150	1.06 984	9.99 843	8	.1	14.9	14.7	0.1
53	8.93 007	147	8.93 165	149	1.06 835	9.99 842	7	.2	29.8	29.4	0.2
54	8.93 154	147	8.93 313	148	1.06 687	9.99 841	6	.3	44.7	44.1	0.3
55	8.93 301	147	8.93 462	149	1.06 538	9.99 840	5	.4	59.6	58.8	0.4
56	8.93 448	146	8.93 609	147	1.06 391	9.99 839	4	.5	74.5	73.5	0.5
57	8.93 594	146	8.93 756	147	1.06 244	9.99 838	3	.6	89.4	88.2	0.6
58	8.93 740	145	8.93 903	147	1.06 097	9.99 837	2	.7	104.3	102.9	0.7
59	8.93 885	145	8.94 049	146	1.05 951	9.99 836	1	.8	119.2	117.6	0.8
60	8.94 030		8.94 195		1.05 805	9.99 834	0	.9	134.1	132.3	0.9
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.		

5°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.		
0	8.94 030		8.94 195		1.05 805	9.99 834	60			
1	8.94 174	144	8.94 340	145	1.05 660	9.99 833	59		145	143	141
2	8.94 317	143	8.94 485	145	1.05 515	9.99 832	58	.1	14.5	14.3	14.1
3	8.94 461	144	8.94 630	145	1.05 370	9.99 831	57	.2	29.0	28.6	28.2
4	8.94 603	142	8.94 773	143	1.05 227	9.99 830	56	.3	43.5	42.9	42.3
5	8.94 746	143	8.94 917	144	1.05 083	9.99 829	55	.4	58.0	57.2	56.4
6	8.94 887	141	8.95 060	143	1.04 940	9.99 828	54	.5	72.5	71.5	70.5
7	8.95 029	142	8.95 202	142	1.04 798	9.99 827	53	.6	87.0	85.8	84.6
8	8.95 170	141	8.95 344	142	1.04 656	9.99 825	52	.7	101.5	100.1	98.7
9	8.95 310	140	8.95 486	142	1.04 514	9.99 824	51	.8	116.0	114.4	112.8
10	8.95 450	140	8.95 627	141	1.04 373	9.99 823	50	.9	130.5	128.7	126.9
11	8.95 589	139	8.95 767	140	1.04 233	9.99 822	49		139	138	136
12	8.95 728	139	8.95 908	141	1.04 092	9.99 821	48	.1	13.9	13.8	13.6
13	8.95 867	139	8.96 047	139	1.03 953	9.99 820	47	.2	27.8	27.6	27.2
14	8.96 005	138	8.96 187	140	1.03 813	9.99 819	46	.3	41.7	41.4	40.8
15	8.96 143	138	8.96 325	138	1.03 675	9.99 817	45	.4	55.6	55.2	54.4
16	8.96 280	137	8.96 464	139	1.03 536	9.99 816	44	.5	69.5	69.0	68.0
17	8.96 417	137	8.96 602	138	1.03 398	9.99 815	43	.6	83.4	82.8	81.6
18	8.96 553	136	8.96 739	137	1.03 261	9.99 814	42	.7	97.3	96.6	95.2
19	8.96 689	136	8.96 877	138	1.03 123	9.99 813	41	.8	111.2	110.4	108.8
20	8.96 825	136	8.97 013	136	1.02 987	9.99 812	40	.9	125.1	124.2	122.4
21	8.96 960	135	8.97 150	137	1.02 850	9.99 810	39		135	133	131
22	8.97 095	135	8.97 285	135	1.02 715	9.99 809	38	.1	13.5	13.3	13.1
23	8.97 229	134	8.97 421	136	1.02 579	9.99 808	37	.2	27.0	26.6	26.2
24	8.97 363	134	8.97 556	135	1.02 444	9.99 807	36	.3	40.5	39.9	39.3
25	8.97 496	133	8.97 691	135	1.02 309	9.99 806	35	.4	54.0	53.2	52.4
26	8.97 629	133	8.97 825	134	1.02 175	9.99 804	34	.5	67.5	66.5	65.5
27	8.97 762	133	8.97 959	134	1.02 041	9.99 803	33	.6	81.0	79.8	78.6
28	8.97 894	132	8.98 092	133	1.01 908	9.99 802	32	.7	94.5	93.1	91.7
29	8.98 026	132	8.98 225	133	1.01 775	9.99 801	31	.8	108.0	106.4	104.8
30	8.98 157	131	8.98 358	133	1.01 642	9.99 800	30	.9	121.5	119.7	117.9
31	8.98 288	131	8.98 490	132	1.01 510	9.99 798	29		129	128	126
32	8.98 419	131	8.98 622	132	1.01 378	9.99 797	28	.1	12.9	12.8	12.6
33	8.98 549	130	8.98 753	131	1.01 247	9.99 796	27	.2	25.8	25.6	25.2
34	8.98 679	130	8.98 884	131	1.01 116	9.99 795	26	.3	38.7	38.4	37.8
35	8.98 808	129	8.99 015	131	1.00 985	9.99 793	25	.4	51.6	51.2	50.4
36	8.98 937	129	8.99 145	130	1.00 855	9.99 792	24	.5	64.5	64.0	63.0
37	8.99 066	129	8.99 275	130	1.00 725	9.99 791	23	.6	77.4	76.8	75.6
38	8.99 194	128	8.99 405	130	1.00 595	9.99 790	22	.7	90.3	89.6	88.2
39	8.99 322	128	8.99 534	129	1.00 466	9.99 788	21	.8	103.2	102.4	100.8
40	8.99 450	127	8.99 662	128	1.00 338	9.99 787	20	.9	116.1	115.2	113.4
41	8.99 577	127	8.99 791	129	1.00 209	9.99 786	19		125	123	122
42	8.99 704	126	8.99 919	128	1.00 081	9.99 785	18	.1	12.5	12.3	12.2
43	8.99 830	126	9.00 046	127	0.99 954	9.99 783	17	.2	25.0	24.6	24.4
44	8.99 956	126	9.00 174	128	0.99 826	9.99 782	16	.3	37.5	36.9	36.6
45	9.00 082	125	9.00 301	127	0.99 699	9.99 781	15	.4	50.0	49.2	48.8
46	9.00 207	125	9.00 427	126	0.99 573	9.99 780	14	.5	62.5	61.5	61.0
47	9.00 332	124	9.00 553	126	0.99 447	9.99 778	13	.6	75.0	73.8	73.2
48	9.00 456	125	9.00 679	126	0.99 321	9.99 777	12	.7	87.5	86.1	85.4
49	9.00 581	123	9.00 805	126	0.99 195	9.99 776	11	.8	100.0	98.4	97.6
50	9.00 704	124	9.00 930	125	0.99 070	9.99 775	10	.9	112.5	110.7	109.8
51	9.00 828	123	9.01 055	125	0.98 945	9.99 773	9		121	120	1
52	9.00 951	123	9.01 179	124	0.98 821	9.99 772	8	.1	12.1	12.0	0.1
53	9.01 074	122	9.01 303	124	0.98 697	9.99 771	7	.2	24.2	24.0	0.2
54	9.01 196	122	9.01 427	124	0.98 573	9.99 769	6	.3	36.3	36.0	0.3
55	9.01 318	122	9.01 550	123	0.98 450	9.99 768	5	.4	48.4	48.0	0.4
56	9.01 440	122	9.01 673	123	0.98 327	9.99 767	4	.5	60.5	60.0	0.5
57	9.01 561	121	9.01 796	123	0.98 204	9.99 765	3	.6	72.6	72.0	0.6
58	9.01 682	121	9.01 918	122	0.98 082	9.99 764	2	.7	84.7	84.0	0.7
59	9.01 803	121	9.02 040	122	0.97 960	9.99 763	1	.8	96.8	96.0	0.8
60	9.01 923	120	9.02 162	122	0.97 838	9.99 761	0	.9	108.9	108.0	0.9
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.		

6°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.		
0	9.01 923		9.02 162		0.97 838	9.99 761	60			
1	9.02 043	120	9.02 283	121	0.97 717	9.99 760	59		121	120	119
2	9.02 163	120	9.02 404	121	0.97 596	9.99 759	58	.1	12.1	12.0	11.9
3	9.02 283	120	9.02 525	121	0.97 475	9.99 757	57	.2	24.2	24.0	23.8
4	9.02 402	119	9.02 645	120	0.97 355	9.99 756	56	.3	36.3	36.0	35.7
5	9.02 520	118	9.02 766	121	0.97 234	9.99 755	55	.4	48.4	48.0	47.6
6	9.02 639	119	9.02 885	119	0.97 115	9.99 753	54	.5	60.5	60.0	59.5
7	9.02 757	118	9.03 005	120	0.96 995	9.99 752	53	.6	72.6	72.0	71.4
8	9.02 874	117	9 03 124	119	0.96 876	9.99 751	52	.7	84.7	84.0	83.3
9	9.02 992	118	9.03 242	118	0.96 758	9.99 749	51	.8	96.8	96.0	95.2
10	9.03 109	117	9.03 361	119	0.96 639	9.99 748	50	.9	108.9	108.0	107.1
11	9.03 226	117	9.03 479	118	0.96 521	9.99 747	49				
12	9.03 342	116	9.03 597	118	0.96 403	9.99 745	48		118	117	116
13	9.03 458	116	9.03 714	117	0.96 286	9.99 744	47	.1	11.8	11.7	11.6
14	9.03 574	116	9.03 832	118	0.96 168	9.99 742	46	.2	23.6	23.4	23.2
15	9.03 690	116	9.03 948	116	0.96 052	9.99 741	45	.3	35.4	35.1	34.8
16	9.03 805	115	9.04 065	117	0.95 935	9.99 740	44	.4	47.2	46.8	46.4
17	9.03 920	115	9.04 181	116	0.95 819	9.99 738	43	.5	59.0	58.5	58.0
18	9.04 034	114	9.04 297	116	0.95 703	9.99 737	42	.6	70.8	70.2	69.6
19	9.04 149	115	9.04 413	116	0.95 587	9.99 736	41	.7	82.6	81.9	81.2
20	9.04 262	113	9.04 528	115	0.95 472	9.99 734	40	.8	94.4	93.6	92.8
21	9.04 376	114	9.04 643	115	0.95 357	9.99 733	39	.9	106.2	105.3	104.4
22	9.04 490	114	9.04 758	115	0.95 242	9.99 731	38		115	114	113
23	9.04 603	113	9.04 873	115	0.95 127	9.99 730	37	.1	11.5	11.4	11.3
24	9.04 715	112	9.04 987	114	0.95 013	9.99 728	36	.2	23.0	22.8	22.6
25	9.04 828	113	9.05 101	114	0.94 899	9.99 727	35	.3	34.5	34.2	33.9
26	9.04 940	112	9.05 214	113	0.94 786	9.99 726	34	.4	46.0	45.6	45.2
27	9.05 052	112	9.05 328	114	0.94 672	9.99 724	33	.5	57.5	57.0	56.5
28	9.05 164	112	9.05 441	113	0.94 559	9.99 723	32	.6	69.0	68.4	67.8
29	9.05 275	111	9.05 553	112	0.94 447	9.99 721	31	.7	80.5	79.8	79.1
30	9.05 386	111	9.05 666	113	0.94 334	9.99 720	30	.8	92.0	91.2	90 4
31	9.05 497	111	9.05 778	112	0.94 222	9.99 718	29	.9	103.5	102.6	101.7
32	9.05 607	110	9.05 890	112	0.94 110	9.99 717	28		112	111	110
33	9.05 717	110	9.06 002	112	0.93 998	9.99 716	27	.1	11.2	11.1	11.0
34	9.05 827	110	9.06 113	111	0.93 887	9.99 714	26	.2	22.4	22.2	22.0
35	9.05 937	110	9.06 224	111	0.93 776	9.99 713	25	.3	33.6	33.3	33.0
36	9.06 046	109	9.06 335	111	0.93 665	9.99 711	24	.4	44.8	44.4	44.0
37	9.06 155	109	9.06 445	110	0.93 555	9.99 710	23	.5	56.0	55.5	55.0
38	9.06 264	109	9.06 556	111	0.93 444	9.99 708	22	.6	67.2	66.6	66.0
39	9 06 372	108	9.06 666	110	0.93 334	9.99 707	21	.7	78.4	77.7	77.0
40	9.06 481	109	9.06 775	109	0.93 225	9.99 705	20	.8	89.6	88.8	88.0
41	9.06 589	108	9.06 885	110	0.93 115	9.99 704	19	.9	100.8	99.9	99.0
42	9.06 696	107	9.06 994	109	0.93 006	9.99 702	18		109	108	107
43	9.06 804	108	9.07 103	109	0.92 897	9.99 701	17	.1	10.9	10.8	10.7
44	9.06 911	107	9.07 211	108	0.92 789	9.99 699	16	.2	21.8	21.6	21.4
45	9 07 018	107	9 07 320	109	0.92 680	9.99 698	15	.3	32.7	32.4	32.1
46	9.07 124	106	9.07 428	108	0.92 572	9.99 696	14	.4	43.6	43.2	42.8
47	9.07 231	107	9.07 536	108	0.92 464	9.99 695	13	.5	54.5	54.0	53.5
48	9.07 337	106	9.07 643	107	0.92 357	9.99 693	12	.6	65.4	64.8	64.2
49	9.07 442	105	9.07 751	108	0.92 249	9.99 692	11	.7	76.3	75.6	74.9
50	9.07 548	106	9.07 858	107	0.92 142	9.99 690	10	.8	87.2	86.4	85.6
51	9.07 653	105	9.07 964	106	0.92 036	9.99 689	9	.9	98.1	97.2	96.3
52	9.07 758	105	9.08 071	107	0.91 929	9.99 687	8		106	105	104
53	9.07 863	105	9.08 177	106	0.91 823	9.99 686	7	.1	10.6	10.5	10.4
54	9.07 968	105	9.08 283	106	0.91 717	9.99 684	6	.2	21.2	21.0	20 8
55	9.08 072	104	9.08 389	106	0.91 611	9.99 683	5	.3	31.8	31.5	31.2
56	9.08 176	104	9.08 495	106	0.91 505	9.99 681	4	.4	42.4	42.0	41.6
57	9.08 280	104	9.08 600	105	0.91 400	9.99 680	3	.5	53.0	52.5	52.0
58	9.08 383	103	9.08 705	105	0.91 295	9.99 678	2	.6	63.6	63.0	62.4
59	9.08 486	103	9.08 810	105	0.91 190	9.99 677	1	.7	74.2	73.5	72.8
60	9.08 589	103	9.08 914	104	0.91 086	9.99 675	0	.8	84.8	84.0	83.2
								.9	95.4	94.5	93.6
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.		

83°

7°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.
0	9.08 589	103	9.08 914	105	0.91 086	9.99 675	60	
1	9.08 692	103	9.09 019	104	0.90 981	9.99 674	59	105 104 103
2	9.08 795	102	9.09 123	104	0.90 877	9.99 672	58	.1 10.5 10.4 10.3
3	9.08 897	102	9.09 227	103	0.90 773	9.99 670	57	.2 21.0 20.8 20.6
4	9.08 999	102	9.09 330	104	0.90 670	9.99 669	56	.3 31.5 31.2 30.9
5	9.09 101	101	9.09 434	103	0.90 566	9.99 667	55	.4 42.0 41.6 41.2
6	9.09 202	102	9.09 537	103	0.90 463	9.99 666	54	.5 52.5 52.0 51.5
7	9.09 304	101	9.09 640	102	0.90 360	9.99 664	53	.6 63.0 62.4 61.8
8	9.09 405	101	9.09 742	103	0.90 258	9.99 663	52	.7 73.5 72.8 72.1
9	9.09 506	100	9.09 845	102	0.90 155	9.99 661	51	.8 84.0 83.2 82.4
10	9.09 606	101	9.09 947	102	0.90 053	9.99 659	50	.9 94.5 93.6 92.7
11	9.09 707	100	9.10 049	101	0.89 951	9.99 658	49	102 101 100
12	9.09 807	100	9.10 150	102	0.89 850	9.99 656	48	.1 10.2 10.1 10.0
13	9.09 907	99	9.10 252	101	0.89 748	9.99 655	47	.2 20.4 20.2 20.0
14	9.10 006	100	9.10 353	101	0.89 647	9.99 653	46	.3 30.6 30.3 30.0
15	9.10 106	99	9.10 454	101	0.89 546	9.99 651	45	.4 40.8 40.4 40.0
16	9.10 205	99	9.10 555	101	0.89 445	9.99 650	44	.5 51.0 50.5 50.0
17	9.10 304	98	9.10 656	100	0.89 344	9.99 648	43	.6 61.2 60.6 60.0
18	9.10 402	99	9.10 756	100	0.89 244	9.99 647	42	.7 71.4 70.7 70.0
19	9.10 501	98	9.10 856	100	0.89 144	9.99 645	41	.8 81.6 80.8 80.0
20	9.10 599	98	9.10 956	100	0.89 044	9.99 643	40	.9 91.8 90.9 90.0
21	9.10 697	98	9.11 056	99	0.88 944	9.99 642	39	99 98
22	9.10 795	98	9.11 155	99	0.88 845	9.99 640	38	.1 9.9 9.8
23	9.10 893	97	9.11 254	99	0.88 746	9.99 638	37	.2 19.8 19.6
24	9.10 990	97	9.11 353	99	0.88 647	9.99 637	36	.3 29.7 29.4
25	9.11 087	97	9.11 452	99	0.88 548	9.99 635	35	.4 39.6 39.2
26	9 11 184	97	9.11 551	98	0.88 449	9.99 633	34	.5 49.5 49.0
27	9 11 281	96	9.11 649	98	0.88 351	9.99 632	33	.6 59.4 58.8
28	9 11 377	97	9.11 747	98	0.88 253	9.99 630	32	.7 69.3 68.6
29	9.11 474	96	9.11 845	98	0.88 155	9.99 629	31	.8 79.2 78.4
30	9.11 570	96	9.11 943	97	0.88 057	9.99 627	30	.9 89.1 88.2
31	9.11 666	95	9.12 040	98	0.87 960	9.99 625	29	97 96 95
32	9.11 761	96	9.12 138	97	0.87 862	9.99 624	28	.1 9.7 9.6 9.5
33	9.11 857	95	9.12 235	97	0.87 765	9.99 622	27	.2 19.4 19.2 19.0
34	9.11 952	95	9.12 332	96	0.87 668	9.99 620	26	.3 29.1 28.8 28 5
35	9.12 047	95	9.12 428	97	0.87 572	9.99 618	25	.4 38.8 38.4 38 0
36	9.12 142	94	9.12 525	96	0.87 475	9.99 617	24	.5 48.5 48.0 47.5
37	9.12 236	95	9.12 621	96	0.87 379	9.99 615	23	.6 58.2 57.6 57.0
38	9.12 331	94	9.12 717	96	0.87 283	9.99 613	22	.7 67.9 67.2 66.5
39	9.12 425	94	9.12 813	96	0.87 187	9.99 612	21	.8 77.6 76.8 76.0
40	9.12 519	93	9.12 909	95	0.87 091	9.99 610	20	.9 87.3 86.4 85.5
41	9.12 612	94	9.13 004	95	0.86 996	9.99 608	19	94 93 92
42	9.12 706	93	9.13 099	95	0.86 901	9.99 607	18	.1 9.4 9.3 9.2
43	9.12 799	93	9.13 194	95	0.86 806	9.99 605	17	.2 18.8 18.6 18.4
44	9 12 892	93	9.13 289	95	0.86 711	9.99 603	16	.3 28.2 27.9 27.6
45	9 12 985	93	9.13 384	94	0.86 616	9.99 601	15	.4 37.6 37.2 36.8
46	9.13 078	93	9.13 478	95	0.86 522	9.99 600	14	.5 47.0 46.5 46.0
47	9.13 171	93	9.13 573	94	0.86 427	9.99 598	13	.6 56.4 55.8 55.2
48	9.13 263	92	9.13 667	94	0.86 333	9.99 596	12	.7 65.8 65.1 64.4
49	9.13 355	92	9.13 761	94	0.86 239	9.99 595	11	.8 75.2 74.4 73.6
50	9.13 447	92	9.13 854	93	0.86 146	9.99 593	10	.9 84.6 83.7 82.8
51	9.13 539	91	9 13 948	94	0.86 052	9.99 591	9	91 90 2
52	9.13 630	92	9.14 041	93	0.85 959	9.99 589	8	.1 9.1 9.0 0.2
53	9.13 722	91	9.14 134	93	0.85 866	9.99 588	7	.2 18.2 18.0 0.4
54	9.13 813	91	9.14 227	93	0.85 773	9.99 586	6	.3 27.3 27.0 0.6
55	9 13 904	90	9.14 320	92	0.85 680	9.99 584	5	.4 36.4 36.0 0.8
56	9.13 994	91	9.14 412	92	0.85 588	9.99 582	4	.5 45.5 45.0 1.0
57	9.14 085	90	9.14 504	92	0.85 496	9.99 581	3	.6 54.6 54.0 1.2
58	9.14 175	91	9.14 597	93	0.85 403	9.99 579	2	.7 63.7 63.0 1.4
59	9.14 266	90	9.14 688	91	0.85 312	9.99 577	1	.8 72.8 72.0 1.6
60	9.14 356		9.14 780	92	0.85 220	9.99 575	0	.9 81.9 81.0 1.8
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.

82°

8°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.			
0	9.14 356		9.14 780		0.85 220	9.99 575	60				
1	9.14 445	89	9.14 872	92	0.85 128	9.99 574	59		92	91	90
2	9.14 535	90	9.14 963	91	0.85 037	9.99 572	58	.1	9.2	9.1	9.0
3	9.14 624	89	9.15 054	91	0.84 946	9.99 570	57	.2	18.4	18.2	18.0
4	9.14 714	90	9.15 145	91	0.84 855	9.99 568	56	.3	27.6	27.3	27.0
5	9.14 803	89	9.15 236	91	0.84 764	9.99 566	55	.4	36.8	36.4	36.0
6	9.14 891	88	9.15 327	91	0.84 673	9.99 565	54	.5	46.0	45.5	45.0
7	9.14 980	89	9.15 417	90	0.84 583	9.99 563	53	.6	55.2	54.6	54.0
8	9.15 069	89	9.15 508	91	0.84 492	9.99 561	52	.7	64.4	63.7	63.0
9	9.15 157	88	9.15 598	90	0.84 402	9.99 559	51	.8	73.6	72.8	72.0
10	9.15 245	88	9.15 688	90	0.84 312	9.99 557	50	.9	82.8	81.9	81.0
11	9.15 333	88	9.15 777	89	0.84 223	9.99 556	49			89	88
12	9.15 421	88	9.15 867	90	0.84 133	9.99 554	48		.1	8.9	8.8
13	9.15 508	87	9.15 956	89	0.84 044	9.99 552	47		.2	17.8	17.6
14	9.15 596	88	9.16 046	90	0.83 954	9.99 550	46		.3	26.7	26.4
15	9.15 683	87	9.16 135	89	0.83 865	9.99 548	45		.4	35.6	35.2
16	9.15 770	87	9.16 224	89	0.83 776	9.99 546	44		.5	44.5	44.0
17	9.15 857	87	9.16 312	88	0.83 688	9.99 545	43		.6	53.4	52.8
18	9.15 944	87	9.16 401	89	0.83 599	9.99 543	42		.7	62.3	61.6
19	9.16 030	86	9.16 489	88	0.83 511	9.99 541	41		.8	71.2	70.4
20	9.16 116	86	9.16 577	88	0.83 423	9.99 539	40		.9	80.1	79.2
21	9.16 203	87	9.16 665	88	0.83 335	9.99 537	39			87	86
22	9.16 289	86	9.16 753	88	0.83 247	9.99 535	38		.1	8.7	8.6
23	9.16 374	85	9.16 841	87	0.83 159	9.99 533	37		.2	17.4	17.2
24	9.16 460	86	9.16 928	88	0.83 072	9.99 532	36		.3	26.1	25.8
25	9.16 545	85	9.17 016	87	0.82 984	9.99 530	35		.4	34.8	34.4
26	9.16 631	86	9.17 103	87	0.82 897	9.99 528	34		.5	43.5	43.0
27	9.16 716	85	9.17 190	87	0.82 810	9.99 526	33		.6	52.2	51.6
28	9.16 801	85	9.17 277	86	0.82 723	9.99 524	32		.7	60.9	60.2
29	9.16 886	85	9.17 363	87	0.82 637	9.99 522	31		.8	69.6	68.8
30	9.16 970	84	9.17 450	86	0.82 550	9.99 520	30		.9	78.3	77.4
31	9.17 055	85	9.17 536	86	0.82 464	9.99 518	29			85	84
32	9.17 139	84	9.17 622	86	0.82 378	9.99 517	28		.1	8.5	8.4
33	9.17 223	84	9.17 708	86	0.82 292	9.99 515	27		.2	17.0	16.8
34	9.17 307	84	9.17 794	86	0.82 206	9.99 513	26		.3	25.5	25.2
35	9.17 391	83	9.17 880	85	0.82 120	9.99 511	25		.4	34.0	33.6
36	9.17 474	84	9.17 965	86	0.82 035	9.99 509	24		.5	42.5	42.0
37	9.17 558	83	9.18 051	85	0.81 949	9.99 507	23		.6	51.0	50.4
38	9.17 641	83	9.18 136	85	0.81 864	9.99 505	22		.7	59.5	58.8
39	9.17 724	83	9.18 221	85	0.81 779	9.99 503	21		.8	68.0	67.2
40	9.17 807	83	9.18 306	85	0.81 694	9.99 501	20		.9	76.5	75.6
41	9.17 890	83	9.18 391	84	0.81 609	9.99 499	19			83	82
42	9.17 973	83	9.18 475	85	0.81 525	9.99 497	18		1	8.3	8.2
43	9.18 055	82	9.18 560	84	0.81 440	9.99 495	17		.2	16.6	16.4
44	9.18 137	82	9.18 644	84	0.81 356	9.99 494	16		.3	24.9	24.6
45	9.18 220	83	9.18 728	84	0.81 272	9.99 492	15		.4	33.2	32.8
46	9.18 302	82	9.18 812	84	0.81 188	9.99 490	14		.5	41.5	41.0
47	9.18 383	81	9.18 896	84	0.81 104	9.99 488	13		.6	49.8	49.2
48	9.18 465	82	9.18 979	83	0.81 021	9.99 486	12		.7	58.1	57.4
49	9.18 547	82	9.19 063	84	0.80 937	9.99 484	11		.8	66.4	65.6
50	9.18 628	81	9.19 146	83	0.80 854	9.99 482	10		.9	74.7	73.8
51	9.18 709	81	9.19 229	83	0.80 771	9.99 480	9			81	80
52	9.18 790	81	9.19 312	83	0.80 688	9.99 478	8		.1	8.1	8.0
53	9.18 871	81	9.19 395	83	0.80 605	9.99 476	7		.2	16.2	16.0
54	9.18 952	81	9.19 478	83	0.80 522	9.99 474	6		.3	24.3	24.0
55	9.19 033	80	9.19 561	82	0.80 439	9.99 472	5		.4	32.4	32.0
56	9.19 113	80	9.19 643	82	0.80 357	9.99 470	4		.5	40.5	40.0
57	9.19 193	80	9.19 725	82	0.80 275	9.99 468	3		.6	48.6	48.0
58	9.19 273	80	9.19 807	82	0.80 193	9.99 466	2		.7	56.7	56.0
59	9.19 353	80	9.19 889	82	0.80 111	9.99 464	1		.8	64.8	64.0
60	9.19 433		9.19 971		0.80 029	9.99 462	0		.9	72.9	72.0
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.			

81°

9°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.
0	9.19 433	80	9.19 971	82	0.80 029	9.99 462	60	
1	9.19 513	79	9.20 053	81	0.79 947	9.99 460	59	82 | 81 | 80
2	9.19 592	80	9.20 134	82	0.79 866	9.99 458	58	.1 8.2 | 8.1 | 8.0
3	9.19 672	79	9.20 216	81	0.79 784	9.99 456	57	2 16.4 | 16.2 | 16.0
4	9.19 751	79	9.20 297	81	0.79 703	9.99 454	56	.3 24.6 | 24.3 | 24.0
5	9.19 830	79	9.20 378	81	0.79 622	9.99 452	55	.4 32.8 | 32.4 | 32.0
6	9.19 909	79	9.20 459	81	0.79 541	9.99 450	54	.5 41.0 | 40.5 | 40.0
7	9.19 988	79	9.20 540	81	0.79 460	9.99 448	53	.6 49.2 | 48.6 | 48.0
8	9.20 067	79	9.20 621	81	0.79 379	9.99 446	52	.7 57.4 | 56.7 | 56.0
9	9 20 145	78	9.20 701	80	0.79 299	9.99 444	51	.8 65.6 | 64.8 | 64.0
10	9.20 223	78	9.20 782	81	0.79 218	9.99 442	50	.9 73.8 | 72.9 | 72.0
11	9.20 302	79	9.20 862	80	0.79 138	9.99 440	49	79 | 78
12	9.20 380	78	9.20 942	80	0.79 058	9.99 438	48	.1 7.9 | 7.8
13	9.20 458	78	9.21 022	80	0.78 978	9.99 436	47	.2 15.8 | 15.6
14	9.20 535	77	9.21 102	80	0.78 898	9.99 434	46	.3 23.7 | 23.4
15	9.20 613	78	9.21 182	80	0.78 818	9.99 432	45	.4 31.6 | 31.2
16	9.20 691	78	9.21 261	79	0.78 739	9.99 429	44	5 39.5 | 39.0
17	9.20 768	77	9.21 341	80	0.78 659	9.99 427	43	.6 47.4 | 46.8
18	9.20 845	77	9.21 420	79	0.78 580	9.99 425	42	.7 55.3 | 54.6
19	9.20 922	77	9.21 499	79	0.78 501	9.99 423	41	.8 63.2 | 62.4
20	9.20 999	77	9.21 578	79	0.78 422	9.99 421	40	.9 71.1 | 70.2
21	9.21 076	77	9.21 657	79	0.78 343	9.99 419	39	77 | 76
22	9.21 153	77	9.21 736	79	0.78 264	9.99 417	38	.1 7.7 | 7.6
23	9.21 229	76	9.21 814	78	0.78 186	9 99 415	37	.2 15 4 | 15.2
24	9.21 306	77	9.21 893	79	0.78 107	9 99 413	36	.3 23.1 | 22.8
25	9.21 382	76	9.21 971	78	0.78 029	9.99 411	35	.4 30.8 | 30.4
26	9.21 458	76	9.22 049	78	0.77 951	9.99 409	34	.5 38.5 | 38.0
27	9.21 534	76	9.22 127	78	0.77 873	9.99 407	33	.6 46.2 | 45.6
28	9.21 610	76	9.22 205	78	0.77 795	9.99 404	32	.7 53.9 | 53.2
29	9.21 685	75	9.22 283	78	0.77 717	9.99 402	31	.8 61.6 | 60.8
30	9.21 761	76	9.22 361	78	0.77 639	9.99 400	30	.9 69.3 | 68.4
31	9.21 836	75	9.22 438	77	0.77 562	9.99 398	29	75 | 74
32	9.21 912	76	9.22 516	78	0.77 484	9.99 396	28	.1 7.5 | 7.4
33	9.21 987	75	9.22 593	77	0.77 407	9.99 394	27	.2 15.0 | 14.8
34	9.22 062	75	9.22 670	77	0.77 330	9.99 392	26	.3 22.5 | 22.2
35	9.22 137	75	9.22 747	77	0.77 253	9 99 390	25	.4 30.0 | 29.6
36	9.22 211	74	9.22 824	77	0.77 176	9.99 388	24	.5 37.5 | 37.0
37	9.22 286	75	9.22 901	77	0.77 099	9.99 385	23	.6 45.0 | 44.4
38	9.22 361	75	9.22 977	76	0.77 023	9.99 383	22	.7 52.5 | 51.8
39	9.22 435	74	9.23 054	77	0.76 946	9.99 381	21	.8 60.0 | 59.2
40	9.22 509	74	9.23 130	76	0.76 870	9.99 379	20	.9 67.5 | 66.6
41	9.22 583	74	9.23 206	76	0.76 794	9.99 377	19	73 | 72
42	9.22 657	74	9.23 283	77	0.76 717	9.99 375	18	.1 7.3 | 7.2
43	9.22 731	74	9.23 359	76	0.76 641	9.99 372	17	.2 14.6 | 14.4
44	9.22 805	74	9.23 435	76	0.76 565	9.99 370	16	.3 21.9 | 21.6
45	9.22 878	73	9.23 510	75	0.76 490	9.99 368	15	4 29.2 | 28.8
46	9.22 952	74	9.23 586	76	0.76 414	9.99 366	14	.5 36.5 | 36.0
47	9.23 025	73	9.23 661	75	0.76 339	9.99 364	13	6 43.8 | 43.2
48	9.23 098	73	9.23 737	76	0.76 263	9.99 362	12	.7 51.1 | 50.4
49	9.23 171	73	9.23 812	75	0.76 188	9.99 359	11	.8 58 4 | 57.6
50	9.23 244	73	9.23 887	75	0.76 113	9.99 357	10	.9 65.7 | 64.8
51	9.23 317	73	9.23 962	75	0.76 038	9.99 355	9	71 | 3 | 2
52	9.23 390	73	9.24 037	75	0.75 963	9.99 353	8	.1 7.1 | 0.3 | 0.2
53	9.23 462	72	9.24 112	75	0.75 888	9 99 351	7	.2 14.2 | 0.6 | 0.4
54	9.23 535	73	9.24 186	74	0.75 814	9.99 348	6	.3 21.3 | 0.9 | 0.6
55	9.23 607	72	9.24 261	75	0.75 739	9.99 346	5	.4 28.4 | 1.2 | 0.8
56	9.23 679	72	9.24 335	74	0.75 665	9.99 344	4	.5 35.5 | 1.5 | 1.0
57	9.23 752	73	9.24 410	75	0.75 590	9.99 342	3	.6 42.6 | 1.8 | 1.2
58	9.23 823	71	9.24 484	74	0.75 516	9.99 340	2	.7 49 7 | 2.1 | 1.4
59	9.23 895	72	9.24 558	74	0.75 442	9.99 337	1	.8 56.8 | 2.4 | 1.6
60	9.23 967	72	9.24 632	74	0.75 368	9.99 335	0	.9 63.9 | 2.7 | 1 8
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.

80°

10°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.		
0	9.23 967		9.24 632		0.75 368	9.99 335	60			
1	9.24 039	72	9.24 706	74	0.75 294	9.99 333	59		74	73
2	9.24 110	71	9.24 779	73	0.75 221	9.99 331	58	.1	7.4	7.3
3	9.24 181	71	9.24 853	74	0.75 147	9.99 328	57	.2	14.8	14.6
4	9.24 253	72	9.24 926	73	0.75 074	9.99 326	56	.3	22.2	21.9
5	9.24 324	71	9.25̄ 000	74	0.75 000	9.99 324	55	.4	29.6	29.2
6	9.24 395	71	9.25 073	73	0.74 927	9.99 322	54	.5	37.0	36.5
7	9.24 466	71	9.25 146	73	0.74 854	9.99 319	53	.6	44.4	43.8
8	9.24 536	70	9.25 219	73	0.74 781	9.99 317	52	.7	51.8	51.1
9	9.24 607	71	9.25 292	73	0.74 708	9.99 315̄	51	.8	59.2	58.4
10	9.24 677	70	9.25 365̄	73	0.74 635	9.99 313	50	.9	66.6	65.7
11	9.24 748	71	9.25 437	72	0.74 563	9.99 310	49		72	71
12	9.24 818	70	9.25 510	73	0.74 490	9.99 308	48	.1	7.2	7.1
13	9.24 888	70	9.25 582	72	0.74 418	9.99 306	47	.2	14.4	14.2
14	9.24 958	70	9.25 655̄	73	0.74 345	9.99 304	46	.3	21.6	21 3
15	9.25 028	70	9.25 727	72	0.74 273	9.99 301	45	.4	28.8	28 4
16	9.25 098	70	9.25 799	72	0.74 201	9.99 299	44	.5	36.0	35 5
17	9.25 168	70	9.25 871	72	0.74 129	9.99 297	43	.6	43.2	42 6
18	9.25 237	69	9.25 943	72	0.74 057	9.99 294	42	.7	50.4	49.7
19	9.25 307	70	9.26 015̄	72	0.73 985	9.99 292	41	.8	57.6	56.8
20	9.25 376	69	9.26 086	71	0.73 914	9.99 290	40	.9	64.8	63.9
21	9.25 445	69	9.26 158	72	0.73 842	9.99 288	39		70	69
22	9.25 514	69	9.26 229	71	0.73 771	9.99 285	38	.1	7.0	6.9
23	9.25 583	69	9.26 301	72	0.73 699	9.99 283	37	.2	14.0	13.8
24	9.25 652	69	9.26 372	71	0.73 628	9.99 281	36	.3	21.0	20.7
25	9.25 721	69	9.26 443	71	0.73 557	9.99 278	35	.4	28.0	27.6
26	9.25 790	68	9 26 514	71	0.73 486	9.99 276	34	.5	35.0	34.5
27	9.25 858	69	9.26 585̄	71	0.73 415	9.99 274	33	.6	42.0	41.4
28	9.25 927	68	9.26 655	70	0,73 345̄	9.99 271	32	.7	49.0	48.3
29	9.25 995	68	9.26 726	71	0.73 274	9.99 269	31	.8	56.0	55.2
30	9.26 063	68	9.26 797	71	0.73 203	9.99 267	30	.9	63.0	62.1
31	9.26 131	68	9.26 867	70	0.73 133	9.99 264	29		68	67
32	9.26 199	68	9.26 937	70	0.73 063	9.99 262	28	1	6.8	6.7
33	9.26 267	68	9.27 008	71	0.72 992	9.99 260	27	.2	13.6	13.4
34	9.26 335	68	9.27 078	70	0.72 922	9.99 257	26	.3	20.4	20.1
35	9.26 403	67	9.27 148	70	0.72 852	9.99 255̄	25	.4	27.2	26.8
36	9.26 470	68	9.27 218	70	0.72 782	9.99 252	24	.5	34.0	33.5
37	9.26 538	67	9.27 288	70	0.72 712	9.99 250	23	.6	40.8	40.2
38	9.26 605	67	9.27 357	69	0.72 643	9.99 248	22	.7	47.6	46.9
39	9.26 672	67	9.27 427	70	0.72 573	9.99 245	21	.8	54.4	53.6
40	9.26 739	67	9.27 496	69	0.72 504	9.99 243	20	.9	61.2	60.3
41	9.26 806	67	9.27 566	70	0.72 434	9.99 241	19		66	65
42	9.26 873	67	9.27 635	69	0.72 365̄	9.99 238	18	.1	6.6	6.5
43	9.26 940	67	9.27 704	69	0.72 296	9.99 236	17	.2	13.2	13.0
44	9.27 007	67	9.27 773	69	0.72 227	9.99 233	16	.3	19.8	19.5
45	9.27 073	66	9.27 842	69	0.72 158	9.99 231	15	.4	26.4	26.0
46	9.27 140	67	9.27 911	69	0.72 089	9.99 229	14	.5	33.0	32.5
47	9.27 206	66	9.27 980	69	0.72 020	9.99 226	13	.6	39.6	39.0
48	9.27 273	67	9.28 049	69	0.71 951	9.99 224	12	.7	46.2	45.5
49	9.27 339	66	9.28 117	68	0.71 883	9.99 221	11	.8	52.8	52.0
50	9.27 405̄	66	9.28 186	69	0.71 814	9.99 219	10	.9	59.4	58.5
51	9.27 471	66	9.28 254	68	0.71 746	9.99 217	9		3	2
52	9.27 537	66	9.28 323	69	0.71 677	9.99 214	8	.1	0.3	0.2
53	9.27 602	65	9.28 391	68	0.71 609	9.99 212	7	.2	0.6	0.4
54	9.27 668	66	9.28 459	68	0.71 541	9.99 209	6	.3	0.9	0.6
55	9.27 734	66	9.28 527	68	0.71 473	9.99 207	5	.4	1.2	0.8
56	9.27 799	65	9.28 595̄	68	0.71 405	9.99 204	4	.5	1.5	1.0
57	9.27 864	65	9.28 662	67	0.71 338	9 99 202	3	.6	1.8	1.2
58	9.27 930	66	9.28 730	68	0.71 270	9.99 200	2	.7	2.1	1.4
59	9.27 995̄	65	9.28 798	68	0.71 202	9.99 197	1	.8	2.4	1.6
60	9.28 060	65	9.28 865	67	0.71 135̄	9.99 195̄	0	.9	2.7	1.8
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.		

79°

11°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.
0	9.28 060		9.28 865		0.71 135	9.99 195	60	
1	9.28 125	65	9.28 933	68	0.71 067	9.99 192	59	68 | 67
2	9.28 190	65	9.29 000	67	0.71 000	9.99 190	58	.1 6.8 | 6.7
3	9.28 254	64	9.29 067	67	0.70 933	9.99 187	57	.2 13.6 | 13.4
4	9.28 319	65	9.29 134	67	0.70 866	9.99 185	56	.3 20 4 | 20 1
5	9.28 384	65	9.29 201	67	0.70 799	9.99 182	55	.4 27 2 | 26 8
6	9.28 448	64	9.29 268	67	0.70 732	9.99 180	54	.5 34 0 | 33 5
7	9.28 512	64	9.29 335	67	0.70 665	9.99 177	53	.6 40.8 | 40.2
8	9.28 577	65	9.29 402	66	0.70 598	9.99 175	52	.7 47.6 | 46.9
9	9.28 641	64	9.29 468	67	0.70 532	9.99 172	51	.8 54.4 | 53.6
10	9.28 705	64	9.29 535	66	0.70 465	9.99 170	50	.9 61 2 | 60.3
11	9.28 769	64	9.29 601	67	0.70 399	9.99 167	49	66 | 65
12	9.28 833	63	9.29 668	66	0.70 332	9.99 165	48	.1 6.6 | 6.5
13	9.28 896	64	9.29 734	66	0.70 266	9.99 162	47	.2 13.2 | 13.0
14	9.28 960	64	9.29 800	66	0.70 200	9.99 160	46	.3 19 8 | 19.5
15	9.29 024	63	9.29 866	66	0.70 134	9.99 157	45	.4 26.4 | 26.0
16	9.29 087	63	9.29 932	66	0.70 068	9.99 155	44	.5 33.0 | 32.5
17	9.29 150	64	9.29 998	66	0.70 002	9.99 152	43	.6 39.6 | 39.0
18	9.29 214	63	9.30 064	66	0.69 936	9.99 150	42	.7 46.2 | 45.5
19	9.29 277	63	9.30 130	65	0.69 870	9.99 147	41	.8 52.8 | 52.0
20	9.29 340	63	9.30 195	66	0.69 805	9.99 145	40	.9 59.4 | 58.5
21	9.29 403	63	9.30 261	65	0.69 739	9.99 142	39	64 | 63
22	9.29 466	63	9.30 326	65	0.69 674	9.99 140	38	.1 6.4 | 6.3
23	9.29 529	62	9.30 391	66	0.69 609	9.99 137	37	.2 12.8 | 12.6
24	9.29 591	63	9.30 457	65	0.69 543	9.99 135	36	.3 19.2 | 18.9
25	9.29 654	62	9.30 522	65	0.69 478	9.99 132	35	.4 25.6 | 25.2
26	9.29 716	63	9.30 587	65	0.69 413	9.99 130	34	.5 32.0 | 31.5
27	9.29 779	62	9.30 652	65	0.69 348	9.99 127	33	.6 38.4 | 37.8
28	9.29 841	62	9.30 717	65	0.69 283	9.99 124	32	.7 44.8 | 44.1
29	9.29 903	63	9.30 782	64	0.69 218	9.99 122	31	.8 51.2 | 50.4
30	9.29 966	62	9.30 846	65	0.69 154	9.99 119	30	.9 57.6 | 56.7
31	9.30 028	62	9.30 911	64	0.69 089	9.99 117	29	62 | 61
32	9.30 090	61	9.30 975	65	0.69 025	9.99 114	28	.1 6.2 | 6.1
33	9.30 151	62	9.31 040	64	0.68 960	9.99 112	27	.2 12.4 | 12.2
34	9.30 213	62	9.31 104	64	0.68 896	9.99 109	26	.3 18.6 | 18.3
35	9.30 275	61	9.31 168	65	0.68 832	9.99 106	25	.4 24.8 | 24.4
36	9.30 336	62	9.31 233	64	0.68 767	9.99 104	24	.5 31.0 | 30.5
37	9.30 398	61	9.31 297	64	0.68 703	9.99 101	23	.6 37.2 | 36.6
38	9.30 459	62	9.31 361	64	0.68 639	9.99 099	22	.7 43.4 | 42.7
39	9.30 521	61	9.31 425	64	0.68 575	9.99 096	21	.8 49.6 | 48.8
40	9.30 582	61	9.31 489	63	0.68 511	9.99 093	20	.9 55.8 | 54.9
41	9.30 643	61	9.31 552	64	0.68 448	9.99 091	19	60 | 59
42	9.30 704	61	9.31 616	63	0.68 384	9.99 088	18	.1 6.0 | 5.9
43	9.30 765	61	9.31 679	64	0.68 321	9.99 086	17	.2 12.0 | 11.8
44	9.30 826	61	9.31 743	63	0.68 257	9.99 083	16	.3 18.0 | 17.7
45	9.30 887	60	9.31 806	64	0.68 194	9.99 080	15	.4 24.0 | 23.6
46	9.30 947	61	9.31 870	63	0.68 130	9.99 078	14	.5 30.0 | 29.5
47	9.31 008	60	9.31 933	63	0.68 067	9.99 075	13	.6 36.0 | 35.4
48	9.31 068	61	9.31 996	63	0.68 004	9.99 072	12	.7 42.0 | 41.3
49	9.31 129	60	9.32 059	63	0.67 941	9.99 070	11	.8 48.0 | 47.2
50	9.31 189	61	9.32 122	63	0.67 878	9.99 067	10	.9 54.0 | 53.1
51	9.31 250	60	9.32 185	63	0.67 815	9.99 064	9	3 | 2
52	9.31 310	60	9.32 248	63	0.67 752	9.99 062	8	.1 0.3 | 0.2
53	9.31 370	60	9.32 311	63	0.67 689	9.99 059	7	.2 0.6 | 0.4
54	9.31 430	60	9.32 373	62	0.67 627	9.99 056	6	.3 0.9 | 0.6
55	9.31 490	59	9.32 436	63	0.67 564	9.99 054	5	.4 1.2 | 0.8
56	9.31 549	60	9.32 498	62	0.67 502	9.99 051	4	.5 1.5 | 1.0
57	9.31 609	60	9.32 561	62	0.67 439	9.99 048	3	.6 1.8 | 1.2
58	9.31 669	59	9.32 623	62	0.67 377	9.99 046	2	.7 2.1 | 1.4
59	9.31 728	60	9.32 685	62	0.67 315	9.99 043	1	.8 2.4 | 1.6
60	9.31 788		9.32 747		0.67 253	9.99 040	0	.9 2.7 | 1.8
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.

12°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.
0	9.31 788		9.32 747		0.67 253	9.99 040	60	
1	9.31 847	59	9.32 810	63	0.67 190	9.99 038	59	63 62
2	9.31 907	60	9.32 872	62	0.67 128	9.99 035	58	.1 6.3 6.2
3	9.31 966	59	9.32 933	61	0.67 067	9.99 032	57	.2 12.6 12.4
4	9.32 025	59	9.32 995	62	0.67 005	9.99 030	56	.3 18.9 18.6
5	9.32 084	59	9.33 057	62	0.66 943	9.99 027	55	.4 25.2 24.8
6	9.32 143	59	9 33 119	61	0.66 881	9.99 024	54	.5 31.5 31.0
7	9.32 202	59	9.33 180	62	0.66 820	9.99 022	53	.6 37.8 37.2
8	9.32 261	58	9.33 242	61	0.66 758	9.99 019	52	.7 44.1 43.4
9	9.32 319	59	9.33 303	62	0.66 697	9.99 016	51	.8 50.4 49.6
10	9.32 378	59	9.33 365	61	0.66 635	9.99 013	50	.9 56.7 55.8
11	9.32 437	58	9.33 426	61	0.66 574	9.99 011	49	61 60
12	9.32 495	58	9.33 487	61	0.66 513	9.99 008	48	.1 6.1 6.0
13	9.32 553	59	9.33 548	61	0.66 452	9.99 005	47	.2 12.2 12.0
14	9.32 612	58	9.33 609	61	0.66 391	9.99 002	46	.3 18.3 18.0
15	9.32 670	58	9.33 670	61	0.66 330	9.99 000	45	.4 24.4 24.0
16	9.32 728	58	9.33 731	61	0.66 269	9.98 997	44	.5 30.5 30.0
17	9.32 786	58	9.33 792	61	0.66 208	9.98 994	43	.6 36.6 36.0
18	9.32 844	58	9.33 853	60	0.66 147	9.98 991	42	.7 42.7 42.0
19	9.32 902	58	9.33 913	61	0.66 087	9.98 989	41	.8 48.8 48.0
20	9.32 960	58	9.33 974	60	0.66 026	9.98 986	40	.9 54.9 54.0
21	9.33 018	57	9.34 034	61	0.65 966	9.98 983	39	59
22	9.33 075	58	9.34 095	60	0.65 905	9.98 980	38	.1 5.9
23	9.33 133	57	9.34 155	60	0.65 845	9.98 978	37	.2 11.8
24	9.33 190	58	9.34 215	61	0.65 785	9.98 975	36	.3 17.7
25	9.33 248	57	9.34 276	60	0.65 724	9.98 972	35	.4 23.6
26	9.33 305	57	9.34 336	60	0.65 664	9.98 969	34	.5 29.5
27	9.33 362	58	9.34 396	60	0.65 604	9.98 967	33	.6 35.4
28	9.33 420	57	9.34 456	60	0.65 544	9.98 964	32	.7 41.3
29	9.33 477	57	9.34 516	60	0.65 484	9.98 961	31	.8 47.2
30	9.33 534	57	9.34 576	59	0.65 424	9.98 958	30	.9 53.1
31	9.33 591	56	9.34 635	60	0.65 365	9.98 955	29	58 57
32	9.33 647	57	9.34 695	60	0.65 305	9.98 953	28	1 5.8 5.7
33	9.33 704	57	9.34 755	59	0.65 245	9.98 950	27	.2 11.6 11.4
34	9.33 761	57	9.34 814	60	0.65 186	9.98 947	26	.3 17.4 17.1
35	9.33 818	56	9.34 874	59	0.65 126	9.98 944	25	.4 23.2 22.8
36	9.33 874	57	9.34 933	59	0.65 067	9.98 941	24	.5 29.0 28.5
37	9.33 931	56	9.34 992	59	0.65 008	9.98 938	23	.6 34.8 34.2
38	9.33 987	56	9.35 051	60	0.64 949	9.98 936	22	.7 40.6 39.9
39	9.34 043	57	9.35 111	59	0.64 889	9.98 933	21	.8 46.4 45.6
40	9.34 100	56	9.35 170	59	0.64 830	9.98 930	20	.9 52.2 51.3
41	9.34 156	56	9.35 229	59	0.64 771	9.98 927	19	56 55
42	9.34 212	56	9.35 288	59	0.64 712	9.98 924	18	.1 5.6 5.5
43	9.34 268	56	9.35 347	59	0.64 653	9.98 921	17	.2 11.2 11.0
44	9.34 324	56	9.35 405	58	0.64 595	9.98 919	16	.3 16.8 16.5
45	9.34 380	56	9.35 464	59	0 64 536	9.98 916	15	.4 22.4 22.0
46	9.34 436	55	9.35 523	59	0.64 477	9.98 913	14	.5 28.0 27.5
47	9.34 491	56	9.35 581	58	0.64 419	9.98 910	13	.6 33.6 33.0
48	9.34 547	55	9.35 640	59	0.64 360	9.98 907	12	.7 39.2 38.5
49	9.34 602	56	9.35 698	58	0.64 302	9.98 904	11	.8 44.8 44.0
50	9.34 658	55	9.35 757	59	0.64 243	9.98 901	10	.9 50.4 49.5
51	9.34 713	56	9.35 815	58	0.64 185	9.98 898	9	3 2
52	9.34 769	55	9.35 873	58	0.64 127	9.98 896	8	.1 0.3 0.2
53	9.34 824	55	9.35 931	58	0.64 069	9.98 893	7	.2 0.6 0.4
54	9.34 879	55	9.35 989	58	0.64 011	9.98 890	6	.3 0.9 0.6
55	9.34 934	55	9.36 047	58	0.63 953	9.98 887	5	.4 1.2 0.8
56	9.34 989	55	9.36 105	58	0.63 895	9.98 884	4	.5 1.5 1.0
57	9.35 044	55	9.36 163	58	0.63 837	9.98 881	3	.6 1.8 1.2
58	9.35 099	55	9.36 221	58	0.63 779	9.98 878	2	.7 2.1 1.4
59	9.35 154	55	9.36 279	58	0.63 721	9.98 875	1	.8 2.4 1.6
60	9.35 209	55	9.36 336	57	0.63 664	9.98 872	0	.9 2.7 1.8
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.

13°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.		Prop. Pts.
0	9.35 209		9.36 336		0.63 664	9.98 872	60	
1	9.35 263	54	9.36 394	58	0.63 606	9.98 869	59	58 57
2	9.35 318	55	9.36 452	58	0.63 548	9.98 867	58	.1 5.8 5.7
3	9.35 373	55	9.36 509	57	0.63 491	9.98 864	57	.2 11.6 11.4
4	9.35 427	54	9.36 566	57	0.63 434	9.98 861	56	.3 17.4 17.1
5	9.35 481	54	9.36 624	58	0.63 376	9.98 858	55	.4 23.2 22.8
6	9.35 536	55	9.36 681	57	0.63 319	9.98 855	54	.5 29.0 28.5
7	9.35 590	54	9.36 738	57	0.63 262	9.98 852	53	.6 34.8 34.2
8	9.35 644	54	9.36 795	57	0.63 205	9.98 849	52	.7 40.6 39.9
9	9.35 698	54	9.36 852	57	0.63 148	9.98 846	51	.8 46.4 45.6
10	9.35 752	54	9.36 909	57	0.63 091	9.98 843	50	.9 52.2 51.3
11	9.35 806	54	9.36 966	57	0.63 034	9.98 840	49	56 55
12	9.35 860	54	9.37 023	57	0.62 977	9.98 837	48	.1 5.6 5.5
13	9.35 914	54	9.37 080	57	0.62 920	9.98 834	47	.2 11.2 11.0
14	9.35 968	54	9.37 137	57	0.62 863	9.98 831	46	.3 16.8 16.5
15	9.36 022	54	9.37 193	56	0.62 807	9.98 828	45	.4 22.4 22.0
16	9.36 075	53	9.37 250	57	0.62 750	9.98 825	44	.5 28.0 27.5
17	9.36 129	54	9.37 306	56	0.62 694	9.98 822	43	.6 33.6 33.0
18	9.36 182	53	9.37 363	57	0.62 637	9.98 819	42	.7 39.2 38.5
19	9.36 236	54	9.37 419	56	0.62 581	9.98 816	41	.8 44.8 44.0
20	9.36 289	53	9.37 476	57	0.62 524	9.98 813	40	.9 50.4 49.5
21	9.36 342	53	9.37 532	56	0.62 468	9.98 810	39	54
22	9.36 395	53	9.37 588	56	0.62 412	9.98 807	38	.1 5.4
23	9.36 449	54	9.37 644	56	0.62 356	9.98 804	37	.2 10.8
24	9.36 502	53	9.37 700	56	0.62 300	9.98 801	36	.3 16.2
25	9.36 555	53	9.37 756	56	0.62 244	9.98 798	35	.4 21.6
26	9.36 608	53	9.37 812	56	0.62 188	9.98 795	34	.5 27.0
27	9.36 660	52	9.37 868	56	0.62 132	9.98 792	33	.6 32.4
28	9.36 713	53	9.37 924	56	0.62 076	9.98 789	32	.7 37.8
29	9.36 766	53	9.37 980	56	0.62 020	9.98 786	31	.8 43.2
30	9.36 819	53	9.38 035	55	0.61 965	9.98 783	30	.9 48.6
31	9.36 871	52	9.38 091	56	0.61 909	9.98 780	29	53 52
32	9.36 924	53	9.38 147	56	0.61 853	9.98 777	28	.1 5.3 5.2
33	9.36 976	52	9.38 202	55	0.61 798	9.98 774	27	.2 10.6 10.4
34	9.37 028	52	9.38 257	55	0.61 743	9.98 771	26	.3 15.9 15.6
35	9.37 081	53	9.38 313	56	0.61 687	9.98 768	25	.4 21.2 20.8
36	9.37 133	52	9.38 368	55	0.61 632	9.98 765	24	.5 26.5 26.0
37	9.37 185	52	9.38 423	55	0.61 577	9.98 762	23	.6 31.8 31.2
38	9.37 237	52	9.38 479	56	0.61 521	9.98 759	22	.7 37.1 36.4
39	9.37 289	52	9.38 534	55	0.61 466	9.98 756	21	.8 42.4 41.6
40	9.37 341	52	9.38 589	55	0.61 411	9.98 753	20	.9 47.7 46.8
41	9.37 393	52	9.38 644	55	0.61 356	9.98 750	19	51 4
42	9.37 445	52	9.38 699	55	0.61 301	9.98 746	18	.1 5.1 0.4
43	9.37 497	52	9.38 754	55	0.61 246	9.98 743	17	.2 10.2 0.8
44	9.37 549	52	9.38 808	54	0.61 192	9.98 740	16	.3 15.3 1.2
45	9.37 600	51	9.38 863	55	0.61 137	9.98 737	15	.4 20.4 1.6
46	9.37 652	52	9.38 918	55	0.61 082	9.98 734	14	.5 25.5 2.0
47	9.37 703	51	9.38 972	54	0.61 028	9.98 731	13	.6 30.6 2.4
48	9.37 755	52	9.39 027	55	0.60 973	9.98 728	12	.7 35.7 2.8
49	9.37 806	51	9.39 082	55	0.60 918	9.98 725	11	.8 40.8 3.2
50	9.37 858	52	9.39 136	54	0.60 864	9.98 722	10	.9 45.9 3.5
51	9.37 909	51	9.39 190	54	0.60 810	9.98 719	9	3 2
52	9.37 960	51	9.39 245	55	0.60 755	9.98 715	8	.1 0.3 0.2
53	9.38 011	51	9.39 299	54	0.60 701	9.98 712	7	.2 0.6 0.4
54	9.38 062	51	9.39 353	54	0.60 647	9.98 709	6	.3 0.9 0.6
55	9.38 113	51	9.39 407	54	0.60 593	9.98 706	5	.4 1.2 0.8
56	9.38 164	51	9.39 461	54	0.60 539	9.98 703	4	.5 1.5 1.0
57	9.38 215	51	9.39 515	54	0.60 485	9.98 700	3	.6 1.8 1.2
58	9.38 266	51	9.39 569	54	0.60 431	9.98 697	2	.7 2.1 1.4
59	9.38 317	51	9.39 623	54	0.60 377	9.98 694	1	.8 2.4 1.6
60	9.38 368	51	9.39 677	54	0.60 323	9.98 690	0	.9 2.7 1.8
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	′	Prop. Pts.

76°

14°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.38 368	50	9.39 677	54	0.60 323	9.98 690	3	60	
1	9.38 418	51	9.39 731	54	0.60 269	9.98 687	3	59	
2	9.38 469	50	9.39 785	53	0.60 215	9.98 684	3	58	
3	9.38 519	51	9.39 838	54	0.60 162	9.98 681	3	57	54 53
4	9.38 570	50	9.39 892	53	0.60 108	9.98 678	3	56	.1 5.4 5.3
5	9.38 620	50	9.39 945	54	0.60 055	9.98 675	3	55	.2 10.8 10.6
6	9.38 670	51	9.39 999	53	0.60 001	9.98 671	4	54	.3 16.2 15.9
7	9.38 721	50	9.40 052	54	0.59 948	9.98 668	3	53	.4 21.6 21.2
8	9.38 771	50	9.40 106	53	0.59 894	9.98 665	3	52	.5 27.0 26.5
9	9.38 821	50	9.40 159	53	0.59 841	9.98 662	3	51	.6 32.4 31.8
10	9.38 871	50	9.40 212	53	0.59 788	9.98 659	3	50	.7 37.8 37.1
11	9.38 921	50	9.40 266	54	0.59 734	9.98 656	3	49	.8 43.2 42.4
12	9.38 971	50	9.40 319	53	0.59 681	9.98 652	4	48	.9 48.6 47.7
13	9.39 021	50	9.40 372	53	0.59 628	9.98 649	3	47	
14	9.39 071	50	9.40 425	53	0.59 575	9.98 646	3	46	52 51
15	9.39 121	49	9.40 478	53	0.59 522	9.98 643	3	45	.1 5.2 5.1
16	9.39 170	50	9.40 531	53	0.59 469	9.98 640	3	44	2 10.4 10.2
17	9.39 220	50	9.40 584	53	0.59 416	9.98 636	4	43	3 15.6 15.3
18	9.39 270	49	9.40 636	52	0.59 364	9.98 633	3	42	.4 20.8 20.4
19	9.39 319	50	9.40 689	53	0.59 311	9.98 630	3	41	.5 26.0 25.5
20	9.39 369	49	9.40 742	53	0.59 258	9.98 627	3	40	.6 31.2 30.6
21	9.39 418	49	9.40 795	53	0.59 205	9.98 623	4	39	.7 36.4 35.7
22	9.39 467	50	9.40 847	52	0.59 153	9.98 620	3	38	.8 41.6 40.8
23	9.39 517	49	9.40 900	53	0.59 100	9.98 617	3	37	.9 46.8 45.9
24	9.39 566	49	9.40 952	52	0.59 048	9.98 614	3	36	
25	9.39 615	49	9.41 005	53	0.58 995	9.98 610	4	35	
26	9.39 664	49	9.41 057	52	0.58 943	9.98 607	3	34	50 49
27	9.39 713	49	9.41 109	52	0.58 891	9.98 604	3	33	.1 5.0 4.9
28	9.39 762	49	9.41 161	52	0.58 839	9.98 601	3	32	.2 10.0 9.8
29	9.39 811	49	9.41 214	53	0.58 786	9.98 597	4	31	.3 15.0 14.7
30	9.39 860	49	9.41 266	52	0.58 734	9.98 594	3	30	.4 20.0 19.6
31	9.39 909	49	9.41 318	52	0.58 682	9.98 591	3	29	.5 25.0 24.5
32	9.39 958	49	9.41 370	52	0.58 630	9.98 588	3	28	.6 30.0 29.4
33	9.40 006	48	9.41 422	52	0.58 578	9.98 584	4	27	.7 35.0 34.3
34	9.40 053	49	9.41 474	52	0.58 526	9.98 581	3	26	.8 40.0 39.2
35	9.40 103	48	9.41 526	52	0.58 474	9.98 578	3	25	.9 45.0 44.1
36	9.40 152	49	9.41 578	52	0.58 422	9.98 574	4	24	
37	9.40 200	48	9.41 629	51	0.58 371	9.98 571	3	23	
38	9.40 249	49	9.41 681	52	0.58 319	9.98 568	3	22	48 47
39	9.40 297	48	9.41 733	52	0.58 267	9.98 565	3	21	.1 4.8 4.7
40	9.40 346	49	9.41 784	51	0.58 216	9.98 561	4	20	.2 9.6 9.4
41	9.40 394	48	9.41 836	52	0.58 164	9.98 558	3	19	.3 14.4 14.1
42	9.40 442	48	9.41 887	51	0.58 113	9.98 555	3	18	.4 19.2 18.8
43	9.40 490	48	9.41 939	52	0.58 061	9.98 551	4	17	.5 24.0 23.5
44	9.40 538	48	9.41 990	51	0.58 010	9.98 548	3	16	.6 28.8 28.2
45	9.40 586	48	9.42 041	51	0.57 959	9.98 545	3	15	.7 33.6 32.9
46	9.40 634	48	9.42 093	52	0.57 907	9.98 541	4	14	.8 38.4 37.6
47	9.40 682	48	9.42 144	51	0.57 856	9.98 538	3	13	.9 43.2 42.3
48	9.40 730	48	9.42 195	51	0.57 805	9.98 535	3	12	
49	9.40 778	48	9.42 246	51	0.57 754	9.98 531	4	11	
50	9.40 825	47	9.42 297	51	0.57 703	9.98 528	3	10	4 3
51	9.40 873	48	9.42 348	51	0.57 652	9.98 525	3	9	.1 0.4 0.3
52	9.40 921	48	9.42 399	51	0.57 601	9.98 521	4	8	.2 0.8 0.6
53	9.40 968	47	9.42 450	51	0.57 550	9.98 518	3	7	.3 1.2 0.9
54	9.41 016	48	9.42 501	51	0.57 499	9.98 515	3	6	.4 1.6 1.2
55	9.41 063	47	9.42 552	51	0.57 448	9.98 511	4	5	.5 2.0 1.5
56	9.41 111	48	9.42 603	51	0.57 397	9.98 508	3	4	.6 2.4 1.8
57	9.41 158	47	9.42 653	50	0.57 347	9.98 505	3	3	.7 2.8 2.1
58	9.41 205	47	9.42 704	51	0.57 296	9.98 501	4	2	.8 3.2 2.4
59	9.41 252	47	9.42 755	51	0.57 245	9.98 498	3	1	.9 3.6 2.7
60	9.41 300	48	9.42 805	50	0.57 195	9.98 494	4	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

75°

15°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.41 300		9.42 805		0.57 195	9.98 404		60	
1	9.41 347	47	9.42 856	51	0.57 144	9.98 491	3	59	
2	9.41 394	47	9.42 906	50	0.57 094	9.98 488	3	58	
3	9.41 441	47	9.42 957	51	0.57 043	9.98 484	4	57	51 50
4	9.41 488	47	9.43 007	50	0.56 993	9.98 481	3	56	.1 5.1 5.0
5	9.41 535	47	9.43 057	50	0.56 943	9.98 477	4	55	.2 10.2 10.0
6	9.41 582	46	9.43 108	51	0.56 892	9.98 474	3	54	.3 15.3 15.0
7	9.41 628	47	9.43 158	50	0.56 842	9.98 471	3	53	.4 20.4 20.0
8	9.41 675	47	9.43 208	50	0.56 792	9.98 467	4	52	.5 25.5 25.0
9	9.41 722	46	9.43 258	50	0.56 742	9.98 464	3	51	.6 30.6 30.0
10	9.41 768	47	9.43 308	50	0.56 692	9.98 460	4	50	.7 35.7 35.0
11	9.41 815	46	9.43 358	50	0.56 642	9.98 457	3	49	.8 40.8 40.0
12	9.41 861	47	9.43 408	50	0.56 592	9.98 453	4	48	.9 45.9 45.0
13	9.41 908	46	9.43 458	50	0.56 542	9.98 450	3	47	
14	9.41 954	47	9.43 508	50	0.56 492	9.98 447	3	46	
15	9.42 001	46	9.43 558	49	0.56 442	9.98 443	4	45	49 48
16	9.42 047	46	9.43 607	50	0.56 393	9.98 440	3	44	.1 4.9 4.8
17	9.42 093	47	9.43 657	50	0.56 343	9.98 436	4	43	.2 9.8 9.6
18	9.42 140	46	9.43 707	49	0.56 293	9.98 433	3	42	.3 14.7 14.4
19	9.42 186	46	9.43 756	50	0.56 244	9.98 429	4	41	.4 19.6 19.2
20	9.42 232	46	9.43 806	49	0.56 194	9.98 426	3	40	.5 24.5 24.0
21	9.42 278	46	9.43 855	50	0.56 145	9.98 422	4	39	.6 29.4 28.8
22	9.42 324	46	9.43 905	49	0.56 095	9.98 419	3	38	.7 34.3 33.6
23	9.42 370	46	9.43 954	50	0.56 046	9.98 415	4	37	.8 39.2 38.4
24	9.42 416	45	9.44 004	49	0.55 996	9.98 412	3	36	.9 44.1 43.2
25	9.42 461	46	9.44 053	49	0.55 947	9.98 409	3	35	
26	9.42 507	46	9.44 102	49	0.55 898	9.98 405	4	34	47 46
27	9.42 553	46	9.44 151	50	0.55 849	9.98 402	3	33	.1 4.7 4.6
28	9.42 599	45	9.44 201	49	0.55 799	9.98 398	4	32	.2 9.4 9.2
29	9.42 644	46	9.44 250	49	0.55 750	9.98 395	3	31	.3 14.1 13.8
30	9.42 690	45	9.44 299	49	0.55 701	9.98 391	4	30	.4 18.8 18.4
31	9.42 735	46	9.44 348	49	0.55 652	9.98 388	3	29	.5 23.5 23.0
32	9.42 781	45	9.44 397	49	0.55 603	9.98 384	4	28	.6 28.2 27.6
33	9.42 826	46	9.44 446	49	0.55 554	9.98 381	3	27	.7 32.9 32.2
34	9.42 872	45	9.44 495	49	0.55 505	9.98 377	4	26	.8 37.6 36.8
35	9.42 917	45	9.44 544	48	0.55 456	9.98 373	4	25	.9 42.3 41.4
36	9.42 962	46	9.44 592	49	0.55 408	9.98 370	3	24	
37	9.43 008	45	9.44 641	49	0.55 359	9.98 366	4	23	
38	9.43 053	45	9.44 690	48	0.55 310	9.98 363	3	22	45 44
39	9.43 098	45	9.44 738	49	0.55 262	9.98 359	4	21	.1 4.5 4.4
40	9.43 143	45	9.44 787	49	0.55 213	9.98 356	3	20	.2 9.0 8.8
41	9.43 188	45	9.44 836	48	0.55 164	9.98 352	4	19	.3 13.5 13.2
42	9.43 233	45	9.44 884	49	0.55 116	9.98 349	3	18	.4 18.0 17.6
43	9.43 278	45	9.44 933	48	0.55 067	9.98 345	4	17	.5 22.5 22.0
44	9.43 323	45	9.44 981	48	0.55 019	9.98 342	3	16	.6 27.0 26.4
45	9.43 367	44	9.45 029	49	0.54 971	9.98 338	4	15	.7 31.5 30.8
46	9.43 412	45	9.45 078	48	0.54 922	9.98 334	4	14	.8 36.0 35.2
47	9.43 457	45	9.45 126	48	0.54 874	9.98 331	3	13	.9 40.5 39.6
48	9.43 502	45	9.45 174	48	0.54 826	9.98 327	4	12	
49	9.43 546	44	9.45 222	48	0.54 778	9.98 324	3	11	
50	9.43 591	45	9.45 271	49	0.54 729	9.98 320	4	10	4 3
51	9.43 635	44	9.45 319	48	0.54 681	9.98 317	3	9	.1 0.4 0.3
52	9.43 680	45	9.45 367	48	0.54 633	9.98 313	4	8	.2 0.8 0.6
53	9.43 724	44	9.45 415	48	0.54 585	9.98 309	4	7	.3 1.2 0.9
54	9.43 769	45	9.45 463	48	0.54 537	9.98 306	3	6	.4 1.6 1.2
55	9.43 813	44	9.45 511	48	0.54 489	9.98 302	4	5	.5 2.0 1.5
56	9.43 857	44	9.45 559	48	0.54 441	9.98 299	3	4	.6 2.4 1.8
57	9.43 901	44	9.45 606	47	0.54 394	9.98 295	4	3	.7 2.8 2.1
58	9.43 946	45	9.45 654	48	0.54 346	9.98 291	4	2	.8 3.2 2.4
59	9.43 990	44	9.45 702	48	0.54 298	9.98 288	3	1	.9 3.6 2.7
60	9.44 034	44	9.45 750	48	0.54 250	9.98 284	4	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

74°

16°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.44 034	44	9.45 750	47	0.54 250	9.98 284	3	60	
1	9 44 078	44	9.45 797	48	0.54 203	9.98 281	4	59	
2	9.44 122	44	9.45 845	47	0.54 155	9.98 277	4	58	
3	9 44 166	44	9.45 892	48	0.54 108	9.98 273	4	57	48 47
4	9.44 210	43	9.45 940	47	0.54 060	9.98 270	3	56	.1 4.8 4.7
5	9.44 253	44	9.45 987	48	0.54 013	9.98 266	4	55	.2 9.6 9.4
6	9.44 297	44	9.46 035	47	0.53 965	9.98 262	4	54	.3 14.4 14.1
7	9.44 341	44	9.46 082	48	0.53 918	9.98 259	3	53	.4 19.2 18.8
8	9.44 385	43	9.46 130	47	0.53 870	9.98 255	4	52	.5 24.0 23.5
9	9.44 428	44	9.46 177	47	0.53 823	9.98 251	4	51	.6 28.8 28.2
10	9.44 472	44	9.46 224	47	0.53 776	9.98 248	3	50	.7 33.6 32.9
11	9.44 516	43	9.46 271	48	0.53 729	9.98 244	4	49	.8 38 4 37.6
12	9.44 559	43	9.46 319	47	0.53 681	9.98 240	4	48	.9 43.2 42.3
13	9.44 602	44	9.46 366	47	0.53 634	9.98 237	3	47	
14	9.44 646	43	9.46 413	47	0.53 587	9.98 233	4	46	46 45
15	9 44 689	44	9.46 460	47	0.53 540	9.98 229	4	45	.1 4.6 4.5
16	9.44 733	43	9.46 507	47	0.53 493	9.98 226	3	44	.2 9.2 9.0
17	9.44 776	43	9.46 554	47	0.53 446	9.98 222	4	43	.3 13.8 13.5
18	9.44 819	43	9.46 601	47	0.53 399	9.98 218	4	42	.4 18.4 18.0
19	9.44 862	43	9.46 648	46	0.53 352	9.98 215	3	41	.5 23.0 22.5
20	9.44 905	43	9.46 694	47	0.53 306	9.98 211	4	40	.6 27.6 27.0
21	9.44 948	44	9.46 741	47	0.53 259	9.98 207	4	39	.7 32.2 31.5
22	9.44 992	43	9.46 788	47	0.53 212	9.98 204	3	38	.8 36.8 36.0
23	9.45 035	42	9.46 835	46	0.53 165	9.98 200	4	37	.9 41.4 40.5
24	9.45 077	43	9.46 881	47	0.53 119	9.98 196	4	36	
25	9.45 120	43	9.46 928	47	0.53 072	9.98 192	4	35	
26	9.45 163	43	9.46 975	46	0.53 025	9.98 189	3	34	44 43
27	9.45 206	43	9.47 021	47	0.52 979	9.98 185	4	33	.1 4.4 4.3
28	9.45 249	43	9.47 068	46	0.52 932	9.98 181	4	32	.2 8.8 8.6
29	9.45 292	42	9.47 114	46	0.52 886	9.98 177	4	31	.3 13.2 12.9
30	9.45 334	43	9.47 160	47	0.52 840	9.98 174	3	30	.4 17.6 17.2
31	9.45 377	42	9.47 207	46	0.52 793	9.98 170	4	29	.5 22.0 21.5
32	9.45 419	43	9.47 253	46	0.52 747	9.98 166	4	28	.6 26.4 25.8
33	9.45 462	42	9.47 299	47	0.52 701	9.98 162	4	27	.7 30.8 30 1
34	9.45 504	43	9.47 346	46	0.52 654	9.98 159	3	26	.8 35.2 34.4
35	9.45 547	42	9.47 392	46	0.52 608	9.98 155	4	25	.9 39.6 38.7
36	9.45 589	43	9.47 438	46	0.52 562	9.98 151	4	24	
37	9.45 632	42	9 47 484	46	0.52 516	9.98 147	4	23	
38	9.45 674	42	9.47 530	46	0.52 470	9.98 144	3	22	42 41
39	9.45 716	42	9.47 576	46	0.52 424	9.98 140	4	21	.1 4.2 4.1
40	9.45 758	43	9.47 622	46	0.52 378	9.98 136	4	20	.2 8.4 8.2
41	9.45 801	42	9.47 668	46	0.52 332	9.98 132	4	19	.3 12.6 12.3
42	9.45 843	42	9.47 714	46	0.52 286	9.98 129	3	18	.4 16.8 16.4
43	9.45 885	42	9.47 760	46	0.52 240	9.98 125	4	17	.5 21.0 20.5
44	9.45 927	42	9.47 806	46	0.52 194	9.98 121	4	16	.6 25.2 24 6
45	9.45 969	42	9.47 852	45	0.52 148	9.98 117	4	15	.7 29.4 28.7
46	9.46 011	42	9.47 897	46	0.52 103	9.98 113	4	14	.8 33.6 32 8
47	9.46 053	42	9.47 943	46	0.52 057	9.98 110	3	13	.9 37.8 36 9
48	9.46 095	42	9.47 989	46	0.52 011	9.98 106	4	12	
49	9.46 136	41	9.48 035	46	0.51 965	9.98 102	4	11	
50	9.46 178	42	9.48 080	45	0.51 920	9.98 098	4	10	4 3
51	9.46 220	42	9.48 126	46	0.51 874	9.98 094	4	9	.1 0.4 0.3
52	9.46 262	42	9.48 171	45	0.51 829	9.98 090	4	8	.2 0.8 0 6
53	9.46 303	41	9.48 217	46	0.51 783	9.98 087	3	7	.3 1.2 0.9
54	9.46 345	42	9.48 262	45	0.51 738	9.98 083	4	6	.4 1.6 1.2
55	9.46 386	41	9.48 307	45	0.51 693	9.98 079	4	5	.5 2.0 1.5
56	9.46 428	42	9.48 353	46	0.51 647	9.98 075	4	4	.6 2.4 1.8
57	9.46 469	41	9.48 398	45	0.51 602	9.98 071	4	3	.7 2.8 2.1
58	9.46 511	42	9.48 443	45	0.51 557	9.98 067	4	2	.8 3.2 2 4
59	9.46 552	41	9.48 489	46	0.51 511	9.98 063	4	1	.9 3.6 2 7
60	9.46 594	42	9.48 534	45	0.51 466	9.98 060	3	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

73°

17°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.46 594		9.48 534		0.51 466	9.98 060		60	
1	9.46 635	41	9.48 579	45	0.51 421	9.98 056	4	59	
2	9.46 676	41	9.48 624	45	0.51 376	9.98 052	4	58	
3	9.46 717	41	9.48 669	45	0.51 331	9.98 048	4	57	45 44
4	9.46 758	41	9.48 714	45	0.51 286	9.98 044	4	56	.1 4.5 4.4
5	9.46 800	42	9.48 759	45	0.51 241	9.98 040	4	55	.2 9.0 8.8
6	9.46 841	41	9.48 804	45	0.51 196	9.98 036	4	54	.3 13.5 13.2
7	9.46 882	41	9.48 849	45	0.51 151	9.98 032	4	53	.4 18.0 17.6
8	9.46 923	41	9.48 894	45	0.51 106	9.98 029	3	52	.5 22.5 22.0
9	9.46 964	41	9.48 939	45	0.51 061	9.98 025	4	51	.6 27.0 26.4
10	9.47 005	40	9.48 984	45	0.51 016	9.98 021	4	50	.7 31.5 30.8
11	9.47 045	41	9.49 029	44	0.50 971	9.98 017	4	49	.8 36.0 35.2
12	9.47 086	41	9.49 073	45	0.50 927	9.98 013	4	48	.9 40.5 39.6
13	9.47 127	41	9.49 118	45	0.50 882	9.98 009	4	47	
14	9.47 168	41	9.49 163	44	0.50 837	9.98 005	4	46	43 42
15	9.47 209	40	9.49 207	45	0.50 793	9.98 001	4	45	.1 4.3 4.2
16	9.47 249	41	9.49 252	44	0.50 748	9.97 997	4	44	.2 8.6 8.4
17	9.47 290	40	9.49 296	45	0.50 704	9.97 993	4	43	.3 12.9 12.6
18	9.47 330	41	9.49 341	44	0.50 659	9.97 989	4	42	.4 17.2 16 8
19	9.47 371	40	9.49 385	45	0.50 615	9.97 986	3	41	.5 21.5 21.0
20	9.47 411	41	9.49 430	44	0.50 570	9.97 982	4	40	.6 25.8 25.2
21	9.47 452	40	9.49 474	45	0 50 526	9.97 978	4	39	.7 30.1 29.4
22	9.47 492	41	9.49 519	44	0.50 481	9 97 974	4	38	.8 34.4 33.6
23	9.47 533	40	9.49 563	44	0 50 437	9.97 970	4	37	.9 38.7 37.8
24	9.47 573	40	9.49 607	45	0.50 393	9.97 966	4	36	
25	9.47 613	41	9.49 652	44	0 50 348	9.97 962	4	35	41 40
26	9.47 654	40	9.49 696	44	0.50 304	9.97 958	4	34	.1 4.1 4.0
27	9.47 694	40	9.49 740	44	0.50 260	9.97 954	4	33	.2 8.2 8.0
28	9.47 734	40	9.49 784	44	0.50 216	9.97 950	4	32	.3 12.3 12.0
29	9.47 774	40	9.49 828	44	0.50 172	9.97 946	4	31	.4 16.4 16.0
30	9.47 814	40	9.49 872	44	0.50 128	9.97 942	4	30	.5 20.5 20.0
31	9.47 854	40	9.49 916	44	0.50 084	9.97 938	4	29	.6 24.6 24.0
32	9.47 894	40	9.49 960	44	0.50 040	9.97 934	4	28	.7 28.7 28.0
33	9.47 934	40	9.50 004	44	0.49 996	9.97 930	4	27	.8 32.8 32.0
34	9.47 974	40	9.50 048	44	0.49 952	9.97 926	4	26	.9 36.9 36.0
35	9.48 014	40	9.50 092	44	0.49 908	9.97 922	4	25	
36	9.48 054	40	9.50 136	44	0.49 864	9.97 918	4	24	
37	9.48 094	39	9.50 180	44	0.49 820	9.97 914	4	23	39 5
38	9.48 133	40	9.50 223	43	0.49 777	9.97 910	4	22	.1 3.9 0.5
39	9.48 173	40	9.50 267	44	0.49 733	9 97 906	4	21	.2 7.8 1.0
40	9.48 213	39	9.50 311	44	0 49 689	9.97 902	4	20	.3 11.7 1.5
41	9.48 252	40	9.50 355	44	0.49 645	9.97 898	4	19	.4 15.6 2.0
42	9.48 292	40	9.50 398	43	0 49 602	9.97 894	4	18	.5 19.5 2.5
43	9.48 332	39	9.50 442	44	0.49 558	9.97 890	4	17	.6 23 4 3.0
44	9.48 371	40	9.50 485	43	0.49 515	9.97 886	4	16	.7 27.3 3.5
45	9.48 411	39	9.50 529	44	0.49 471	9.97 882	4	15	.8 31.2 4.0
46	9.48 450	40	9.50 572	43	0.49 428	9.97 878	4	14	.9 35.1 4.5
47	9.48 490	39	9.50 616	44	0.49 384	9.97 874	4	13	
48	9.48 529	39	9.50 659	43	0.49 341	9.97 870	4	12	
49	9.48 568	39	9.50 703	44	0.49 297	9.97 866	4	11	
50	9.48 607	40	9.50 746	43	0.49 254	9.97 861	5	10	4 3
51	9.48 647	39	9.50 789	43	0.49 211	9.97 857	4	9	.1 0.4 0.3
52	9.48 686	39	9.50 833	44	0.49 167	9.97 853	4	8	.2 0.8 0.6
53	9.48 725	39	9.50 876	43	0.49 124	9.97 849	4	7	.3 1.2 0.9
54	9.48 764	39	9.50 919	43	0.49 081	9.97 845	4	6	.4 1.6 1.2
55	9.48 803	39	9.50 962	43	0.49 038	9.97 841	4	5	.5 2.0 1.5
56	9.48 842	39	9.51 005	43	0 48 995	9.97 837	4	4	.6 2.4 1 8
57	9 48 881	39	9.51 048	43	0 48 952	9.97 833	4	3	.7 2.8 2.1
58	9.48 920	39	9.51 092	44	0.48 908	9.97 829	4	2	.8 3.2 2.4
59	9.48 959	39	9.51 135	43	0 48 865	9.97 825	4	1	.9 3.6 2.7
60	9.48 998	39	9.51 178	43	0.48 822	9.97 821	4	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

72°

18°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.48 998		9.51 178		0.48 822	9.97 821		60	
1	9.49 037	39	9.51 221	43	0.48 779	9.97 817	4	59	
2	9.49 076	39	9.51 264	43	0.48 736	9.97 812	5	58	
3	9.49 115	39	9.51 306	42	0.48 694	9.97 808	4	57	43 42
4	9.49 153	38	9.51 349	43	0.48 651	9.97 804	4	56	.1 4.3 4.2
5	9.49 192	39	9.51 392	43	0.48 608	9.97 800	4	55	.2 8.6 8.4
6	9.49 231	39	9.51 435	43	0.48 565	9.97 796	4	54	.3 12.9 12.6
7	9 49 269	38	9.51 478	42	0.48 522	9.97 792	4	53	.4 17.2 16.8
8	9.49 308	39	9.51 520	43	0.48 480	9.97 788	4	52	.5 21.5 21.0
9	9.49 347	39	9.51 563	43	0.48 437	9.97 784	4	51	.6 25.8 25.2
10	9.49 385	38	9.51 606	42	0.48 394	9.97 779	5	50	.7 30.1 29.4
11	9.49 424	39	9.51 648	43	0.48 352	9.97 775	4	49	.8 34.4 33.6
12	9.49 462	38	9.51 691	43	0.48 309	9.97 771	4	48	.9 38.7 37.8
13	9.49 500	38	9.51 734	42	0.48 266	9.97 767	4	47	
14	9 49 539	39	9.51 776	43	0 48 224	9.97 763	4	46	41
15	9 49 577	38	9.51 819	42	0.48 181	9.97 759	4	45	.1 4.1
16	9.49 615	38	9.51 861	42	0.48 139	9.97 754	5	44	.2 8.2
17	9.49 654	39	9.51 903	43	0.48 097	9.97 750	4	43	.3 12.3
18	9.49 692	38	9.51 946	42	0.48 054	9.97 746	4	42	.4 16.4
19	9.49 730	38	9.51 988	42	0.48 012	9.97 742	4	41	.5 20.5
20	9.49 768	38	9.52 031	43	0.47 969	9.97 738	4	40	.6 24.6
21	9.49 806	38	9.52 073	42	0.47 927	9.97 734	4	39	.7 28.7
22	9.49 844	38	9.52 115	42	0.47 885	9.97 729	5	38	.8 32.8
23	9.49 882	38	9.52 157	42	0.47 843	9.97 725	4	37	.9 36.9
24	9.49 920	38	9.52 200	43	0.47 800	9.97 721	4	36	
25	9.49 958	38	9.52 242	42	0.47 758	9.97 717	4	35	39 38
26	9.49 996	38	9.52 284	42	0.47 716	9.97 713	4	34	.1 3.9 3.8
27	9.50 034	38	9.52 326	42	0.47 674	9.97 708	5	33	.2 7.8 7.6
28	9.50 072	38	9.52 368	42	0.47 632	9.97 704	4	32	.3 11.7 11.4
29	9.50 110	38	9.52 410	42	0.47 590	9.97 700	4	31	.4 15.6 15.2
30	9.50 148	37	9.52 452	42	0.47 548	9.97 696	4	30	.5 19.5 19.0
31	9.50 185	38	9.52 494	42	0.47 506	9.97 691	5	29	.6 23.4 22.8
32	9.50 223	38	9.52 536	42	0.47 464	9.97 687	4	28	.7 27.3 26.6
33	9.50 261	37	9.52 578	42	0.47 422	9.97 683	4	27	.8 31.2 30.4
34	9 50 298	38	9.52 620	41	0.47 380	9.97 679	4	26	.9 35.1 34.2
35	9 50 336	38	9.52 661	42	0.47 339	9.97 674	5	25	
36	9 50 374	37	9.52 703	42	0.47 297	9.97 670	4	24	
37	9.50 411	38	9.52 745	42	0.47 255	9.97 666	4	23	37 36
38	9 50 449	37	9.52 787	42	0.47 213	9.97 662	4	22	.1 3.7 3.6
39	9.50 486	37	9.52 829	41	0.47 171	9.97 657	5	21	.2 7.4 7.2
40	9.50 523	38	9.52 870	42	0.47 130	9.97 653	4	20	.3 11.1 10.8
41	9.50 561	37	9.52 912	41	0.47 088	9.97 649	4	19	.4 14.8 14.4
42	9.50 598	37	9.52 953	42	0.47 047	9.97 645	4	18	.5 18.5 18.0
43	9.50 635	38	9.52 995	42	0.47 005	9.97 640	5	17	.6 22.2 21.6
44	9.50 673	37	9.53 037	41	0.46 963	9.97 636	4	16	.7 25.9 25.2
45	9.50 710	37	9.53 078	42	0.46 922	9.97 632	4	15	.8 29.6 28.8
46	9.50 747	37	9.53 120	41	0.46 880	9.97 628	4	14	.9 33.3 32.4
47	9.50 784	37	9.53 161	41	0.46 839	9.97 623	5	13	
48	9.50 821	37	9.53 202	41	0.46 798	9.97 619	4	12	
49	9.50 858	38	9.53 244	42	0.46 756	9.97 615	4	11	5 4
50	9.50 896	37	9.53 285	41	0.46 715	9.97 610	5	10	.1 0.5 0.4
51	9.50 933	37	9.53 327	42	0.46 673	9.97 606	4	9	.2 1.0 0.8
52	9.50 970	37	9.53 368	41	0.46 632	9.97 602	4	8	.3 1.5 1.2
53	9.51 007	37	9 53 409	41	0.46 591	9.97 597	5	7	.4 2.0 1.6
54	9.51 043	36	9.53 450	41	0.46 550	9.97 593	4	6	.5 2.5 2.0
55	9.51 080	37	9.53 492	42	0.46 508	9.97 589	4	5	.6 3.0 2.4
56	9.51 117	37	9.53 533	41	0.46 467	9.97 584	5	4	.7 3.5 2.8
57	9.51 154	37	9.53 574	41	0.46 426	9.97 580	4	3	.8 4.0 3.2
58	9.51 191	37	9.53 615	41	0.46 385	9.97 576	4	2	.9 4.5 3.6
59	9.51 227	36	9.53 656	41	0.46 344	9.97 571	5	1	
60	9.51 264	37	9.53 697	41	0.46 303	9.97 567	4	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

71°

19°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.51 264		9.53 697		0.46 303	9.97 567		60	
1	9.51 301	37	9.53 738	41	0.46 262	9.97 563	4	59	
2	9.51 338	37	9.53 779	41	0.46 221	9.97 558	5	58	
3	9.51 374	36	9.53 820	41	0.46 180	9.97 554	4	57	41 40
4	9.51 411	37	9.53 861	41	0.46 139	9.97 550	4	56	.1 4.1 4.0
5	9.51 447	36	9.53 902	41	0.46 098	9.97 545	5	55	.2 8.2 8.0
6	9.51 484	37	9.53 943	41	0.46 057	9.97 541	4	54	.3 12.3 12.0
7	9 51 520	36	9.53 984	41	0.46 016	9.97 536	5	53	.4 16.4 16.0
8	9 51 557	37	9.54 025	41	0.45 975	9.97 532	4	52	.5 20.5 20.0
9	9.51 593	36	9.54 065	40	0.45 935	9.97 528	4	51	.6 24.6 24.0
10	9.51 629	36	9.54 106	41	0.45 894	9.97 523	5	50	.7 28.7 28.0
11	9.51 666	37	9.54 147	41	0.45 853	9.97 519	4	49	.8 32.8 32 0
12	9.51 702	36	9.54 187	40	0.45 813	9.97 515	4	48	.9 36.9 36.0
13	9.51 738	36	9.54 228	41	0.45 772	9.97 510	5	47	
14	9.51 774	36	9.54 269	41	0.45 731	9.97 506	4	46	39
15	9.51 811	37	9.54 309	40	0.45 691	9.97 501	5	45	.1 3.9
16	9.51 847	36	9.54 350	41	0.45 650	9.97 497	4	44	.2 7.8
17	9.51 883	36	9.54 390	40	0.45 610	9.97 492	5	43	.3 11.7
18	9.51 919	36	9.54 431	41	0.45 569	9.97 488	4	42	.4 15 6
19	9.51 955	36	9.54 471	40	0.45 529	9.97 484	4	41	.5 19.5
20	9.51 991	36	9.54 512	41	0.45 488	9.97 479	5	40	.6 23.4
21	9.52 027	36	9.54 552	40	0.45 448	9.97 475	4	39	.7 27.3
22	9.52 063	36	9.54 593	41	0.45 407	9.97 470	5	38	.8 31.2
23	9.52 099	36	9 54 633	40	0.45 367	9.97 466	4	37	.9 35.1
24	9.52 135	36	9.54 673	40	0.45 327	9.97 461	5	36	
25	9.52 171	36	9.54 714	41	0.45 286	9.97 457	4	35	
26	9.52 207	36	9.54 754	40	0.45 246	9.97 453	4	34	37 36
27	9 52 242	35	9 54 794	40	0.45 206	9.97 448	5	33	.1 3.7 3.6
28	9 52 278	36	9.54 835	41	0.45 165	9.97 444	4	32	.2 7.4 7.2
29	9.52 314	36	9.54 875	40	0.45 125	9.97 439	5	31	.3 11.1 10.8
30	9.52 350	35	9.54 915	40	0.45 085	9.97 435	4	30	.4 14.8 14.4
31	9.52 385	36	9 54 955	40	0.45 045	9.97 430	5	29	.5 18.5 18.0
32	9.52 421	35	9 54 995	40	0.45 005	9.97 426	4	28	.6 22.2 21.6
33	9.52 456	36	9.55 035	40	0.44 965	9.97 421	5	27	.7 25.9 25.2
34	9.52 492	35	9.55 075	40	0.44 925	9.97 417	4	26	.8 29.6 28.8
35	9.52 527	36	9.55 115	40	0.44 885	9.97 412	5	25	.9 33.3 32 4
36	9.52 563	35	9.55 155	40	0.44 845	9.97 408	4	24	
37	9.52 598	36	9.55 195	40	0.44 805	9.97 403	5	23	
38	9.52 634	35	9.55 235	40	0.44 765	9.97 399	4	22	35 34
39	9.52 669	36	9.55 275	40	0.44 725	9 97 394	5	21	.1 3.5 3 4
40	9.52 705	35	9.55 315	40	0.44 685	9.97 390	4	20	.2 7.0 6 8
41	9.52 740	35	9 55 355	40	0.44 645	9.97 385	5	19	.3 10.5 10.2
42	9.52 775	36	9.55 395	39	0.44 605	9.97 381	4	18	.4 14.0 13.6
43	9.52 811	35	9.55 434	40	0.44 566	9.97 376	5	17	.5 17.5 17.0
44	9.52 846	35	9.55 474	40	0.44 526	9.97 372	4	16	.6 21.0 20 4
45	9 52 881	35	9.55 514	40	0.44 486	9.97 367	5	15	.7 24.5 23 8
46	9.52 916	35	9 55 554	40	0.44 446	9.97 363	4	14	.8 28 0 27.2
47	9.52 951	35	9 55 593	39	0.44 407	9.97 358	5	13	.9 31.5 30.6
48	9 52 986	35	9.55 633	40	0.44 367	9.97 353	5	12	
49	9 53 021	35	9.55 673	40	0.44 327	9.97 349	4	11	
50	9 53 056	35	9 55 712	39	0.44 288	9.97 344	5	10	5 4
51	9 53 092	36	9.55 752	40	0.44 248	9.97 340	4	9	.1 0.5 0.4
52	9.53 126	34	9 55 791	39	0.44 209	9.97 335	5	8	.2 1.0 0.8
53	9.53 161	35	9 55 831	40	0.44 169	9.97 331	4	7	.3 1.5 1.2
54	9.53 196	35	9 55 870	39	0.44 130	9.97 326	5	6	.4 2 0 1.6
55	9.53 231	35	9.55 910	40	0.44 090	9.97 322	4	5	.5 2 5 2 c
56	9.53 266	35	9 55 949	39	0.44 051	9.97 317	5	4	.6 3.0 2.4
57	9 53 301	35	9 55 989	40	0.44 011	9.97 312	5	3	.7 3.5 2.8
58	9 53 336	35	9 56 028	39	0.43 972	9.97 308	4	2	.8 4.0 3.2
59	9 53 370	34	9 56 067	39	0.43 933	9.97 303	5	1	.9 4.5 3.6
60	9.53 405	35	9.56 107	40	0.43 893	9.97 299	4	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

70°

20°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.53 405		9.56 107		0.43 893	9.97 299		60	
1	9.53 440	35	9.56 146	39	0.43 854	9.97 294	5	59	
2	9.53 475	35	9.56 185	39	0.43 815	9.97 289	5	58	
3	9.53 509	34	9.56 224	39	0.43 776	9.97 285	4	57	40 39
4	9.53 544	35	9.56 264	40	0.43 736	9.97 280	5	56	.1 4.0 3.9
5	9.53 578	34	9.56 303	39	0.43 697	9.97 276	4	55	.2 8.0 7.8
6	9.53 613	35	9.56 342	39	0.43 658	9.97 271	5	54	.3 12.0 11.7
7	9.53 647	34	9.56 381	39	0.43 619	9.97 266	5	53	.4 16.0 15.6
8	9.53 682	35	9.56 420	39	0.43 580	9.97 262	4	52	.5 20.0 19.5
9	9.53 716	34	9.56 459	39	0.43 541	9.97 257	5	51	.6 24.0 23.4
10	9.53 751	35	9.56 498	39	0.43 502	9.97 252	5	50	.7 28.0 27.3
11	9.53 785	34	9.56 537	39	0.43 463	9.97 248	4	49	.8 32.0 31.2
12	9.53 819	34	9.56 576	39	0.43 424	9.97 243	5	48	.9 36.0 35.1
13	9.53 854	35	9.56 615	39	0.43 385	9.97 238	5	47	
14	9.53 888	34	9.56 654	39	0.43 346	9.97 234	4	46	
15	9.53 922	34	9.56 693	39	0.43 307	9.97 229	5	45	38 37
16	9.53 957	35	9.56 732	39	0.43 268	9.97 224	5	44	.1 3.8 3.7
17	9.53 991	34	9.56 771	39	0.43 229	9.97 220	5	43	.2 7.6 7.4
18	9.54 025	34	9.56 810	39	0.43 190	9.97 215	5	42	.3 11.4 11.1
19	9.54 059	34	9.56 849	39	0.43 151	9.97 210	5	41	.4 15.2 14.8
20	9.54 093	34	9.56 887	38	0.43 113	9.97 206	4	40	.5 19.0 18.5
21	9.54 127	34	9.56 926	39	0.43 074	9.97 201	5	39	.6 22.8 22.2
22	9.54 161	34	9.56 965	39	0.43 035	9.97 196	5	38	.7 26.6 25.9
23	9.54 195	34	9.57 004	39	0.42 996	9.97 192	4	37	.8 30.4 29.6
24	9.54 229	34	9.57 042	38	0.42 958	9.97 187	5	36	.9 34.2 33.3
25	9.54 263	34	9.57 081	39	0.42 919	9.97 182	5	35	
26	9.54 297	34	9.57 120	39	0.42 880	9.97 178	4	34	35
27	9.54 331	34	9.57 158	38	0.42 842	9.97 173	5	33	.1 3.5
28	9.54 365	34	9.57 197	39	0.42 803	9.97 168	5	32	.2 7.0
29	9.54 399	34	9.57 235	38	0.42 765	9.97 163	5	31	.3 10.5
30	9.54 433	33	9.57 274	39	0.42 726	9.97 159	4	30	.4 14.0
31	9.54 466	34	9.57 312	38	0.42 688	9.97 154	5	29	.5 17.5
32	9.54 500	34	9.57 351	39	0.42 649	9.97 149	5	28	.6 21.0
33	9.54 534	33	9.57 389	38	0.42 611	9.97 145	4	27	.7 24.5
34	9.54 567	34	9.57 428	39	0.42 572	9.97 140	5	26	.8 28.0
35	9.54 601	34	9.57 466	38	0.42 534	9.97 135	5	25	.9 31.5
36	9.54 635	33	9.57 504	38	0.42 496	9.97 130	5	24	
37	9.54 668	34	9.57 543	39	0.42 457	9.97 126	4	23	
38	9.54 702	33	9.57 581	38	0.42 419	9.97 121	5	22	34 33
39	9.54 735	34	9.57 619	38	0.42 381	9.97 116	5	21	.1 3.4 3.3
40	9.54 769	33	9.57 658	39	0.42 342	9.97 111	5	20	.2 6.8 6.6
41	9.54 802	34	9.57 696	38	0.42 304	9.97 107	4	19	.3 10.2 9.9
42	9.54 836	33	9.57 734	38	0.42 266	9.97 102	5	18	.4 13.6 13.2
43	9.54 869	34	9.57 772	38	0.42 228	9.97 097	5	17	.5 17.0 16.5
44	9.54 903	33	9.57 810	38	0.42 190	9.97 092	5	16	.6 20.4 19.8
45	9.54 936	33	9.57 849	39	0.42 151	9.97 087	5	15	.7 23.8 23.1
46	9.54 969	34	9.57 887	38	0.42 113	9.97 083	4	14	.8 27.2 26.4
47	9.55 003	33	9.57 925	38	0.42 075	9.97 078	5	13	.9 30.6 29.7
48	9.55 036	33	9.57 963	38	0.42 037	9.97 073	5	12	
49	9.55 069	33	9.58 001	38	0.41 999	9.97 068	5	11	
50	9.55 102	33	9.58 039	38	0.41 961	9.97 063	5	10	5 4
51	9.55 136	34	9.58 077	38	0.41 923	9.97 059	4	9	.1 0.5 0.4
52	9.55 169	33	9.58 115	38	0.41 885	9.97 054	5	8	.2 1.0 0.8
53	9.55 202	33	9.58 153	38	0.41 847	9.97 049	5	7	.3 1.5 1.2
54	9.55 235	33	9.58 191	38	0.41 809	9.97 044	5	6	.4 2.0 1.6
55	9.55 268	33	9.58 229	38	0.41 771	9.97 039	5	5	.5 2.5 2.0
56	9.55 301	33	9.58 267	37	0.41 733	9.97 035	4	4	.6 3.0 2.4
57	9.55 334	33	9.58 304	38	0.41 696	9.97 030	5	3	.7 3.5 2.8
58	9.55 367	33	9.58 342	38	0.41 658	9.97 025	5	2	.8 4.0 3.2
59	9.55 400	33	9.58 380	38	0.41 620	9.97 020	5	1	.9 4.5 3.6
60	9.55 433	33	9.58 418	38	0.41 582	9.97 015	5	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

69°

21°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.55 433		9.58 418		0.41 582	9.97 015		60	
1	9.55 466	33	9.58 455	37	0.41 545	9.97 010	5	59	
2	9.55 499	33	9.58 493	38	0.41 507	9.97 005	5	58	
3	9.55 532	33	9.58 531	38	0.41 469	9.97 001	4	57	38 37
4	9.55 564	32	9.58 569	38	0.41 431	9.96 996	5	56	.1 3.8 3.7
5	9.55 597	33	9.58 606	37	0.41 394	9.96 991	5	55	.2 7.6 7.4
6	9.55 630	33	9.58 644	38	0.41 356	9.96 986	5	54	.3 11.4 11.1
7	9.55 663	33	9.58 681	37	0.41 319	9.96 981	5	53	.4 15.2 14.8
8	9.55 695	32	9.58 719	38	0.41 281	9.96 976	5	52	.5 19.0 18.5
9	9.55 728	33	9.58 757	38	0.41 243	9.96 971	5	51	.6 22.8 22.2
10	9.55 761	33	9.58 794	37	0.41 206	9.96 966	5	50	.7 26.6 25.9
11	9.55 793	32	9.58 832	38	0.41 168	9.96 962	4	49	.8 30.4 29.6
12	9.55 826	33	9.58 869	37	0.41 131	9.96 957	5	48	.9 34.2 33.3
13	9.55 858	32	9.58 907	38	0.41 093	9.96 952	5	47	
14	9.55 891	33	9.58 944	37	0.41 056	9.96 947	5	46	36 33
15	9.55 923	32	9.58 981	37	0.41 019	9.96 942	5	45	.1 3.6 3.3
16	9.55 956	33	9.59 019	38	0.40 981	9.96 937	5	44	.2 7.2 6.6
17	9.55 988	32	9.59 056	37	0.40 944	9.96 932	5	43	.3 10.8 9.9
18	9.56 021	33	9.59 094	38	0.40 906	9.96 927	5	42	.4 14.4 13.2
19	9.56 053	32	9.59 131	37	0.40 869	9.96 922	5	41	.5 18.0 16.5
20	9.56 085	33	9.59 168	37	0.40 832	9.96 917	5	40	.6 21.6 19.8
21	9.56 118	32	9.59 205	37	0.40 795	9.96 912	5	39	.7 25.2 23.1
22	9.56 150	32	9.59 243	38	0.40 757	9.96 907	5	38	.8 28.8 26.4
23	9.56 182	32	9.59 280	37	0.40 720	9.96 903	4	37	.9 32.4 29.7
24	9.56 215	33	9.59 317	37	0.40 683	9.96 898	5	36	
25	9.56 247	32	9.59 354	37	0.40 646	9.96 893	5	35	
26	9.56 279	32	9.59 391	37	0 40 609	9.96 888	5	34	32
27	9.56 311	32	9.59 429	38	0.40 571	9.96 883	5	33	.1 3.2
28	9.56 343	32	9.59 466	37	0.40 534	9 96 878	5	32	.2 6.4
29	9.56 375	32	9.59 503	37	0.40 497	9.96 873	5	31	.3 9 6
30	9.56 408	33	9.59 540	37	0.40 460	9.96 868	5	30	.4 12 8
31	9.56 440	32	9.59 577	37	0.40 423	9.96 863	5	29	.5 16 0
32	9.56 472	32	9.59 614	37	0.40 386	9.96 858	5	28	.6 19.2
33	9.56 504	32	9.59 651	37	0.40 349	9.96 853	5	27	.7 22.4
34	9.56 536	32	9.59 688	37	0.40 312	9.96 848	5	26	.8 25 6
35	9.56 568	32	9.59 725	37	0.40 275	9 96 843	5	25	.9 28.8
36	9.56 599	31	9.59 762	37	0.40 238	9.96 838	5	24	
37	9.56 631	32	9.59 799	37	0.40 201	9.96 833	5	23	
38	9.56 663	32	9.59 835	36	0.40 165	9.96 828	5	22	31 6
39	9.56 695	32	9.59 872	37	0.40 128	9.96 823	5	21	.1 3.1 0.6
40	9.56 727	32	9.59 909	37	0.40 091	9.96 818	5	20	.2 6.2 1.2
41	9.56 759	32	9.59 946	37	0.40 054	9.96 813	5	19	3 9.3 1.8
42	9.56 790	31	9.59 983	37	0 40 017	9.96 808	5	18	.4 12.4 2.4
43	9.56 822	32	9.60 019	36	0.39 981	9.96 803	5	17	.5 15 5 3.0
44	9.56 854	32	9.60 056	37	0.39 944	9.96 798	5	16	.6 18.6 3.6
45	9.56 886	32	9.60 093	37	0.39 907	9.96 793	5	15	.7 21.7 4.2
46	9.56 917	31	9.60 130	37	0.39 870	9.96 788	5	14	.8 24.8 4.8
47	9.56 949	32	9.60 166	36	0.39 834	9.96 783	5	13	.9 27.9 5.4
48	9.56 980	31	9.60 203	37	0.39 797	9.96 778	5	12	
49	9.57 012	32	9.60 240	37	0.39 760	9.96 772	6	11	
50	9.57 044	32	9.60 276	36	0.39 724	9.96 767	5	10	5 4
51	9.57 075	31	9.60 313	37	0.39 687	9.96 762	5	9	1 0.5 0.4
52	9.57 107	32	9.60 349	36	0.39 651	9.96 757	5	8	.2 1.0 0.8
53	9.57 138	31	9.60 386	37	0.39 614	9.96 752	5	7	.3 1.5 1.2
54	9.57 169	31	9.60 422	36	0.39 578	9.96 747	5	6	.4 2.0 1.6
55	9.57 201	32	9.60 459	37	0 39 541	9.96 742	5	5	.5 2.5 2.0
56	9.57 232	31	9.60 495	36	0.39 505	9.96 737	5	4	.6 3.0 2.4
57	9 57 264	32	9.60 532	37	0.39 468	9.96 732	5	3	.7 3.5 2.8
58	9 57 295	31	9.60 568	36	0.39 432	9.96 727	5	2	.8 4.0 3.2
59	9 57 326	31	9.60 605	37	0.39 395	9.96 722	5	1	.9 4.5 3.6
60	9.57 358	32	9.60 641	36	0.39 359	9.96 717	5	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

68°

22°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.57 358	31	9.60 641	36	0.39 359	9.96 717	6	60	
1	9.57 389	31	9.60 677	37	0.39 323	9.96 711	5	59	
2	9.57 420	31	9.60 714	36	0.39 286	9.96 706	5	58	
3	9.57 451	31	9.60 750	36	0.39 250	9.96 701	5	57	37 36
4	9.57 482	32	9.60 786	37	0.39 214	9.96 696	5	56	.1 3.7 3.6
5	9.57 514	31	9.60 823	36	0.39 177	9.96 691	5	55	.2 7.4 7.2
6	9.57 545	31	9.60 859	36	0.39 141	9.96 686	5	54	.3 11.1 10.8
7	9.57 576	31	9.60 895	36	0.39 105	9.96 681	5	53	.4 14.8 14.4
8	9.57 607	31	9.60 931	36	0.39 069	9.96 676	5	52	.5 18.5 18.0
9	9.57 638	31	9.60 967	37	0.39 033	9.96 670	6	51	.6 22.2 21.6
10	9.57 669	31	9.61 004	36	0.38 996	9.96 665	5	50	.7 25.9 25.2
11	9.57 700	31	9.61 040	36	0.38 960	9.96 660	5	49	.8 29.6 28.8
12	9.57 731	31	9.61 076	36	0.38 924	9.96 655	5	48	.9 33.3 32.4
13	9.57 762	31	9.61 112	36	0.38 888	9.96 650	5	47	
14	9.57 793	31	9.61 148	36	0.38 852	9.96 645	5	46	35
15	9.57 824	31	9.61 184	36	0.38 816	9.96 640	6	45	.1 3.5
16	9.57 855	30	9.61 220	36	0.38 780	9.96 634	5	44	.2 7.0
17	9.57 885	31	9.61 256	36	0.38 744	9.96 629	5	43	.3 10.5
18	9.57 916	31	9.61 292	36	0.38 708	9.96 624	5	42	.4 14.0
19	9.57 947	31	9.61 328	36	0.38 672	9.96 619	5	41	.5 17.5
20	9.57 978	30	9.61 364	36	0.38 636	9.96 614	6	40	.6 21.0
21	9 58 008	31	9.61 400	36	0.38 600	9.96 608	5	39	.7 24.5
22	9.58 039	31	9.61 436	36	0.38 564	9.96 603	5	38	.8 28.0
23	9.58 070	31	9.61 472	36	0.38 528	9.96 598	5	37	9 31.5
24	9.58 101	30	9.61 508	36	0.38 492	9.96 593	5	36	
25	9.58 131	31	9.61 544	35	0.38 456	9.96 588	6	35	32 31
26	9.58 162	30	9.61 579	36	0.38 421	9.96 582	5	34	.1 3.2 3.1
27	9.58 192	31	9.61 615	36	0.38 385	9.96 577	5	33	.2 6.4 6.2
28	9.58 223	30	9.61 651	36	0.38 349	9.96 572	5	32	.3 9.6 9.3
29	9.58 253	31	9.61 687	35	0.38 313	9.96 567	5	31	.4 12.8 12.4
30	9.58 284	30	9.61 722	36	0.38 278	9.96 562	6	30	.5 16.0 15.5
31	9.58 314	31	9.61 758	36	0.38 242	9.96 556	5	29	.6 19.2 18 6
32	9.58 345	30	9.61 794	36	0.38 206	9.96 551	5	28	.7 22.4 21.7
33	9.58 375	31	9.61 830	35	0.38 170	9.96 546	5	27	.8 25.6 24.8
34	9.58 406	30	9.61 865	36	0.38 135	9.96 541	6	26	.9 28.8 27.9
35	9.58 436	31	9.61 901	35	0.38 099	9.96 535	5	25	
36	9.58 467	30	9.61 936	36	0.38 064	9.96 530	5	24	
37	9.58 497	30	9.61 972	36	0.38 028	9.96 525	5	23	
38	9.58 527	30	9.62 008	35	0.37 992	9.96 520	6	22	30 29
39	9.58 557	31	9.62 043	36	0.37 957	9.96 514	5	21	.1 3.0 2.9
40	9.58 588	30	9.62 079	35	0.37 921	9.96 509	5	20	.2 6.0 5.8
41	9.58 618	30	9.62 114	36	0.37 886	9.96 504	6	19	.3 9.0 8.7
42	9.58 648	30	9.62 150	35	0.37 850	9.96 498	5	18	.4 12.0 11.6
43	9.58 678	31	9.62 185	36	0.37 815	9.96 493	5	17	.5 15.0 14 5
44	9.58 709	30	9.62 221	35	0.37 779	9.96 488	5	16	.6 18.0 17.4
45	9.58 739	30	9.62 256	36	0.37 744	9.96 483	6	15	.7 21.0 20.3
46	9.58 769	30	9.62 292	35	0.37 708	9.96 477	5	14	.8 24.0 23.2
47	9.58 799	30	9.62 327	35	0.37 673	9.96 472	5	13	.9 27 0 26.1
48	9.58 829	30	9.62 362	36	0.37 638	9.96 467	5	12	
49	9.58 859	30	9.62 398	35	0.37 602	9.96 461	6	11	
50	9.58 889	30	9.62 433	35	0.37 567	9.96 456	5	10	6 5
51	9.58 919	30	9.62 468	36	0.37 532	9.96 451	5	9	.1 0.6 0.5
52	9.58 949	30	9.62 504	35	0.37 496	9.96 445	6	8	.2 1.2 1.0
53	9.58 979	30	9.62 539	35	0.37 461	9.96 440	5	7	.3 1.8 1.5
54	9.59 009	30	9.62 574	35	0.37 426	9.96 435	5	6	.4 2.4 2.0
55	9.59 039	30	9.62 609	35	0.37 391	9.96 429	6	5	.5 3.0 2.5
56	9.59 069	29	9.62 645	36	0.37 355	9.96 424	5	4	.6 3.6 3.0
57	9.59 098	30	9.62 680	35	0.37 320	9.96 419	5	3	.7 4.2 3.5
58	9.59 128	30	9.62 715	35	0.37 285	9.96 413	6	2	.8 4.8 4.0
59	9.59 158	30	9.62 750	35	0.37 250	9.96 408	5	1	.9 5.4 4.5
60	9.59 188	30	9.62 785	35	0.37 215	9.96 403	5	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

67°

23°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9 59 188		9.62 785		0.37 215	9.96 403		60	
1	9.59 218	30	9.62 820	35	0.37 180	9.96 397	6	59	
2	9.59 247	29	9.62 855	35	0.37 145	9.96 392	5	58	
3	9.59 277	30	9.62 890	35	0.37 110	9.96 387	5	57	36 35
4	9.59 307	30	9.62 926	36	0.37 074	9.96 381	6	56	.1 3.6 3.5
5	9.59 336	29	9.62 961	35	0.37 039	9.96 376	5	55	.2 7 2 7.0
6	9.59 366	30	9.62 996	35	0 37 004	9.96 370	6	54	.3 10.8 10.5
7	9.59 396	30	9.63 031	35	0.36 969	9.96 365	5	53	.4 14.4 14.0
8	9.59 425	29	9.63 066	35	0.36 934	9.96 360	5	52	.5 18.0 17.5
9	9.59 455	30	9.63 101	35	0.36 899	9.96 354	6	51	.6 21.6 21 0
10	9.59 484	29	9.63 135	34	0.36 865	9.96 349	5	50	.7 25.2 24.5
11	9.59 514	30	9.63 170	35	0.36 830	9.96 343	6	49	.8 28.8 28.0
12	9.59 543	29	9.63 205	35	0.36 795	9.96 338	5	48	.9 32.4 31.5
13	9 59 573	30	9 63 240	35	0.36 760	9.96 333	5	47	
14	9.59 602	29	9.63 275	35	0.36 725	9.96 327	6	46	34
15	9.59 632	30	9.63 310	35	0.36 690	9.96 322	5	45	.1 3.4
16	9.59 661	29	9.63 345	34	0.36 655	9.96 316	6	44	.2 6.8
17	9.59 690	29	9.63 379	35	0.36 621	9.96 311	5	43	.3 10 2
18	9.59 720	30	9.63 414	35	0.36 586	9.96 305	6	42	.4 13.6
19	9.59 749	29	9.63 449	35	0.36 551	9.96 300	5	41	.5 17.0
20	9.59 778	29	9.63 484	35	0.36 516	9.96 294	6	40	.6 20.4
21	9.59 808	30	9.63 519	35	0.36 481	9.96 289	5	39	.7 23.8
22	9.59 837	29	9.63 553	34	0.36 447	9.96 284	5	38	.8 27.2
23	9.59 866	29	9.63 588	35	0.36 412	9.96 278	6	37	.9 30.6
24	9.59 895	29	9.63 623	35	0.36 377	9.96 273	5	36	
25	9.59 924	29	9.63 657	34	0.36 343	9.96 267	6	35	
26	9.59 954	30	9.63 692	35	0.36 308	9.96 262	5	34	30 29
27	9.59 983	29	9.63 726	34	0.36 274	9.96 256	6	33	.1 3.0 2.9
28	9.60 012	29	9.63 761	35	0.36 239	9.96 251	5	32	.2 6.0 5.8
29	9 60 041	29	9.63 796	35	0.36 204	9.96 245	6	31	.3 9.0 8.7
30	9.60 070	29	9.63 830	34	0.36 170	9.96 240	5	30	.4 12.0 11.6
31	9.60 099	29	9.63 865	35	0.36 135	9.96 234	6	29	.5 15.0 14.5
32	9.60 128	29	9.63 899	34	0.36 101	9 96 229	5	28	.6 18.0 17 4
33	9.60 157	29	9.63 934	35	0.36 066	9.96 223	6	27	.7 21.0 20 3
34	9.60 186	29	9.63 968	34	0.36 032	9.96 218	5	26	.8 24.0 23 2
35	9.60 215	29	9.64 003	35	0.35 997	9.96 212	6	25	.9 27.0 26 1
36	9.60 244	29	9.64 037	34	0.35 963	9.96 207	5	24	
37	9.60 273	29	9.64 072	35	0 35 928	9.96 201	6	23	
38	9.60 302	29	9.64 106	34	0.35 894	9.96 196	5	22	28
39	9.60 331	29	9 64 140	34	0.35 860	9.96 190	6	21	.1 2.8
40	9.60 359	28	9.64 175	35	0.35 825	9.96 185	5	20	.2 5.6
41	9.60 388	29	9.64 209	34	0.35 791	9.96 179	6	19	.3 8.4
42	9.60 417	29	9.64 243	34	0.35 757	9.96 174	5	18	.4 11.2
43	9.60 446	29	9.64 278	35	0.35 722	9.96 168	6	17	.5 14.0
44	9.60 474	28	9.64 312	34	0.35 688	9.96 162	6	16	.6 16.8
45	9.60 503	29	9 64 346	34	0.35 654	9.96 157	5	15	.7 19.6
46	9.60 532	29	9 64 381	35	0.35 619	9.96 151	6	14	.8 22.4
47	9.60 561	29	9.64 415	34	0.35 585	9.96 146	5	13	.9 25.2
48	9.60 589	28	9.64 449	34	0.35 551	9.96 140	6	12	
49	9.60 618	29	9.64 483	34	0.35 517	9.96 135	5	11	
50	9.60 646	28	9.64 517	34	0.35 483	9.96 129	6	10	6 5
51	9.60 675	29	9.64 552	35	0.35 448	9 96 123	6	9	.1 0.6 0.5
52	9.60 704	29	9.64 586	34	0.35 414	9.96 118	5	8	.2 1.2 1.0
53	9.60 732	28	9.64 620	34	0.35 380	9.96 112	6	7	.3 1.8 1.5
54	9.60 761	29	9.64 654	34	0.35 346	9.96 107	5	6	.4 2.4 2.0
55	9.60 789	28	9.64 688	34	0.35 312	9.96 101	6	5	.5 3.0 2.5
56	9.60 818	29	9.64 722	34	0.35 278	9.96 095	6	4	.6 3.6 3.0
57	9.60 846	28	9.64 756	34	0.35 244	9.96 090	5	3	.7 4.2 3.5
58	9.60 875	29	9.64 790	34	0.35 210	9.96 084	6	2	.8 4.8 4.0
59	9.60 903	28	9.64 824	34	0.35 176	9.96 079	5	1	.9 5.4 4.5
60	9.60 931	28	9.64 858	34	0.35 142	9.96 073	6	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

66°

24°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.60 931		9.64 858		0.35 142	9.96 073		60	
1	9.60 960	29	9.64 892	34	0.35 108	9.96 067	6	59	
2	9.60 988	28	9.64 926	34	0.35 074	9.96 062	5	58	
3	9.61 016	28	9.64 960	34	0.35 040	9.96 056	6	57	34 33
4	9.61 045	29	9.64 994	34	0.35 006	9.96 050	6	56	.1 3.4 3.3
5	9.61 073	28	9.65 028	34	0.34 972	9.96 045	5	55	.2 6.8 6.6
6	9.61 101	28	9.65 062	34	0.34 938	9.96 039	6	54	.3 10.2 9.9
7	9.61 129	28	9.65 096	34	0.34 904	9.96 034	5	53	.4 13.6 13.2
8	9.61 158	29	9.65 130	34	0.34 870	9.96 028	6	52	.5 17.0 16.5
9	9.61 186	28	9.65 164	34	0.34 836	9.96 022	6	51	.6 20.4 19.8
10	9.61 214	28	9.65 197	33	0.34 803	9.96 017	5	50	.7 23.8 23.1
11	9.61 242	28	9.65 231	34	0.34 769	9.96 011	6	49	.8 27.2 26.4
12	9.61 270	28	9.65 265	34	0.34 735	9.96 005	6	48	.9 30.6 29.7
13	9.61 298	28	9.65 299	34	0.34 701	9.96 000	5	47	
14	9.61 326	28	9.65 333	34	0.34 667	9.95 994	6	46	29
15	9.61 354	28	9.65 366	33	0.34 634	9.95 988	6	45	.1 2.9
16	9.61 382	29	9.65 400	34	0.34 600	9.95 982	6	44	.2 5.8
17	9.61 411	27	9.65 434	34	0.34 566	9.95 977	5	43	.3 8.7
18	9.61 438	28	9.65 467	33	0.34 533	9.95 971	6	42	.4 11.6
19	9.61 466	28	9.65 501	34	0.34 499	9.95 965	6	41	.5 14.5
20	9.61 494	28	9.65 535	34	0.34 465	9.95 960	5	40	.6 17.4
21	9.61 522	28	9.65 568	33	0.34 432	9.95 954	6	39	.7 20.3
22	9.61 550	28	9.65 602	34	0.34 398	9.95 948	6	38	.8 23.2
23	9.61 578	28	9.65 636	34	0.34 364	9.95 942	6	37	.9 26.1
24	9.61 606	28	9.65 669	33	0.34 331	9.95 937	5	36	
25	9.61 634	28	9.65 703	34	0.34 297	9.95 931	6	35	28
26	9.61 662	27	9.65 736	33	0.34 264	9.95 925	6	34	.1 2.8
27	9.61 689	28	9.65 770	34	0.34 230	9.95 920	5	33	.2 5.6
28	9.61 717	28	9.65 803	33	0.34 197	9.95 914	6	32	.3 8.4
29	9.61 745	28	9.65 837	34	0.34 163	9.95 908	6	31	.4 11.2
30	9.61 773	27	9.65 870	33	0.34 130	9.95 902	6	30	.5 14.0
31	9.61 800	28	9.65 904	34	0.34 096	9.95 897	5	29	.6 16.8
32	9.61 828	28	9.65 937	33	0.34 063	9.95 891	6	28	.7 19.6
33	9.61 856	27	9.65 971	34	0.34 029	9.95 885	6	27	.8 22.4
34	9.61 883	28	9.66 004	33	0.33 996	9.95 879	6	26	.9 25.2
35	9.61 911	28	9.66 038	34	0.33 962	9.95 873	6	25	
36	9.61 939	27	9.66 071	33	0.33 929	9.95 868	5	24	
37	9.61 966	28	9.66 104	33	0.33 896	9.95 862	6	23	
38	9.61 994	27	9.66 138	34	0.33 862	9.95 856	6	22	27
39	9.62 021	28	9.66 171	33	0.33 829	9.95 850	6	21	.1 2.7
40	9.62 049	27	9.66 204	33	0.33 796	9.95 844	6	20	.2 5.4
41	9.62 076	28	9.66 238	34	0.33 762	9.95 839	5	19	.3 8.1
42	9.62 104	27	9.66 271	33	0.33 729	9.95 833	6	18	.4 10.8
43	9.62 131	28	9.66 304	33	0.33 696	9.95 827	6	17	.5 13.5
44	9.62 159	27	9.66 337	33	0.33 663	9.95 821	6	16	.6 16.2
45	9.62 186	28	9.66 371	34	0.33 629	9.95 815	6	15	.7 18.9
46	9.62 214	27	9.66 404	33	0.33 596	9.95 810	5	14	.8 21.6
47	9.62 241	27	9.66 437	33	0.33 563	9.95 804	6	13	.9 24.3
48	9.62 268	28	9.66 470	33	0.33 530	9.95 798	6	12	
49	9.62 296	27	9.66 503	33	0.33 497	9.95 792	6	11	6 5
50	9.62 323	27	9.66 537	34	0.33 463	9.95 786	6	10	.1 0.6 0.5
51	9.62 350	27	9.66 570	33	0.33 430	9.95 780	6	9	.2 1.2 1.0
52	9.62 377	27	9.66 603	33	0.33 397	9.95 775	5	8	.3 1.8 1.5
53	9.62 405	28	9.66 636	33	0.33 364	9.95 769	6	7	.4 2.4 2.0
54	9.62 432	27	9.66 669	33	0.33 331	9.95 763	6	6	.5 3.0 2.5
55	9.62 459	27	9.66 702	33	0.33 298	9.95 757	6	5	.6 3.6 3.0
56	9.62 486	27	9.66 735	33	0.33 265	9.95 751	6	4	.7 4.2 3.5
57	9.62 513	27	9.66 768	33	0.33 232	9.95 745	6	3	.8 4.8 4.0
58	9.62 541	28	9.66 801	33	0.33 199	9.95 739	6	2	.9 5.4 4.5
59	9.62 568	27	9.66 834	33	0.33 166	9.95 733	6	1	
60	9.62 595	27	9.66 867	33	0.33 133	9.95 728	5	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

65°

25°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.62 595	27	9.66 867	33	0.33 133	9.95 728	6	60	
1	9.62 622	27	9.66 900	33	0.33 100	9.95 722	6	59	
2	9.62 649	27	9.66 933	33	0.33 067	9.95 716	6	58	33 32
3	9.62 676	27	9.66 966	33	0.33 034	9.95 710	6	57	.1 3.3 3.2
4	9.62 703	27	9.66 999	33	0.33 001	9 95 704	6	56	.2 6.6 6.4
5	9.62 730	27	9.67 032	33	0.32 968	9.95 698	6	55	.3 9.9 9.6
6	9.62 757	27	9.67 065	33	0.32 935	9.95 692	6	54	.4 13.2 12.8
7	9.62 784	27	9.67 098	33	0.32 902	9.95 686	6	53	.5 16.5 16.0
8	9.62 811	27	9.67 131	33	0.32 869	9.95 680	6	52	.6 19.8 19.2
9	9.62 838	27	9.67 163	32	0.32 837	9.95 674	6	51	.7 23.1 22.4
10	9.62 865	27	9.67 196	33	0.32 804	9.95 668	6	50	.8 26.4 25.6
11	9.62 892	26	9.67 229	33	0.32 771	9.95 663	5	49	.9 29.7 28.8
12	9.62 918	27	9.67 262	33	0.32 738	9.95 657	6	48	
13	9.62 945	27	9.67 295	33	0.32 705	9.95 651	6	47	
14	9.62 972	27	9.67 327	32	0.32 673	9.95 645	6	46	27
15	9.62 999	27	9.67 360	33	0.32 640	9.95 639	6	45	.1 2.7
16	9.63 026	26	9.67 393	33	0.32 607	9.95 633	6	44	.2 5.4
17	9.63 052	27	9.67 426	33	0.32 574	9.95 627	6	43	.3 8.1
18	9.63 079	27	9.67 458	32	0.32 542	9.95 621	6	42	.4 10.8
19	9.63 106	27	9.67 491	33	0.32 509	9.95 615	6	41	.5 13.5
20	9.63 133	26	9.67 524	33	0.32 476	9.95 609	6	40	.6 16.2
21	9.63 159	27	9.67 556	32	0.32 444	9.95 603	6	39	.7 18.9
22	9.63 186	27	9.67 589	33	0.32 411	9.95 597	6	38	.8 21.6
23	9.63 213	26	9.67 622	33	0.32 378	9.95 591	6	37	.9 24.3
24	9.63 239	27	9.67 654	32	0.32 346	9.95 585	6	36	
25	9.63 266	26	9.67 687	33	0.32 313	9.95 579	6	35	26
26	9.63 292	27	9.67 719	32	0.32 281	9.95 573	6	34	.1 2.6
27	9.63 319	26	9.67 752	33	0.32 248	9.95 567	6	33	.2 5.2
28	9.63 345	27	9.67 785	33	0.32 215	9.95 561	6	32	.3 7.8
29	9.63 372	26	9.67 817	32	0.32 183	9.95 555	6	31	.4 10.4
30	9.63 398	27	9.67 850	33	0.32 150	9.95 549	6	30	.5 13.0
31	9.63 425	26	9.67 882	32	0.32 118	9.95 543	6	29	.6 15.6
32	9.63 451	27	9.67 915	33	0.32 085	9.95 537	6	28	.7 18.2
33	9.63 478	26	9.67 947	32	0.32 053	9.95 531	6	27	.8 20.8
34	9.63 504	27	9.67 980	33	0.32 020	9.95 525	6	26	.9 23.4
35	9.63 531	26	9.68 012	32	0.31 988	9.95 519	6	25	
36	9.63 557	26	9.68 044	32	0.31 956	9.95 513	6	24	
37	9.63 583	27	9.68 077	33	0.31 923	9.95 507	6	23	
38	9.63 610	26	9.68 109	32	0.31 891	9.95 500	7	22	7
39	9.63 636	26	9.68 142	33	0.31 858	9.95 494	6	21	.1 0.7
40	9.63 662	27	9.68 174	32	0.31 826	9.95 488	6	20	.2 1.4
41	9.63 689	26	9.68 206	32	0.31 794	9.95 482	6	19	.3 2.1
42	9.63 715	26	9.68 239	33	0.31 761	9.95 476	6	18	.4 2.8
43	9.63 741	26	9.68 271	32	0.31 729	9.95 470	6	17	.5 3.5
44	9.63 767	26	9.68 303	32	0.31 697	9.95 464	6	16	.6 4.2
45	9.63 794	27	9.68 336	33	0.31 664	9.95 458	6	15	.7 4.9
46	9.63 820	26	9.68 368	32	0.31 632	9.95 452	6	14	.8 5.6
47	9 63 846	26	9.68 400	32	0.31 600	9.95 446	6	13	.9 6.3
48	9 63 872	26	9.68 432	32	0.31 568	9.95 440	6	12	
49	9.63 898	26	9.68 465	33	0.31 535	9.95 434	6	11	
50	9.63 924	26	9.68 497	32	0.31 503	9.95 427	7	10	6 5
51	9.63 950	26	9.68 529	32	0.31 471	9.95 421	6	9	.1 0.6 0.5
52	9 63 976	26	9.68 561	32	0.31 439	9.95 415	6	8	.2 1.2 1.0
53	9.64 002	26	9.68 593	32	0.31 407	9.95 409	6	7	.3 1 8 1.5
54	9.64 028	26	9.68 626	33	0.31 374	9.95 403	6	6	.4 2 4 2 0
55	9.64 054	26	9.68 658	32	0.31 342	9.95 397	6	5	.5 3.0 2.5
56	9.64 080	26	9.68 690	32	0.31 310	9.95 391	6	4	.6 3.6 3.0
57	9.64 106	26	9.68 722	32	0.31 278	9.95 384	7	3	.7 4.2 3.5
58	9.64 132	26	9.68 754	32	0.31 246	9.95 378	6	2	.8 4.8 4.0
59	9.64 158	26	9.68 786	32	0.31 214	9.95 372	6	1	.9 5.4 4.5
60	9.64 184		9.68 818	32	0.31 182	9.95 366	6	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

26°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.64 184	26	9.68 818	32	0.31 182	9.95 366	6	60	
1	9.64 210	26	9.68 850	32	0.31 150	9.95 360	6	59	
2	9.64 236	26	9.68 882	32	0.31 118	9.95 354	6	58	
3	9.64 262	26	9.68 914	32	0.31 086	9.95 348	7	57	32 31
4	9.64 288	25	9.68 946	32	0.31 054	9.95 341	6	56	.1 3.2 3.1
5	9.64 313	26	9.68 978	32	0.31 022	9.95 335	6	55	.2 6.4 6.2
6	9.64 339	26	9.69 010	32	0.30 990	9.95 329	6	54	.3 9.6 9.3
7	9.64 365	26	9.69 042	32	0.30 958	9.95 323	6	53	.4 12.8 12.4
8	9.64 391	26	9.69 074	32	0.30 926	9.95 317	7	52	.5 16.0 15.5
9	9.64 417	25	9.69 106	32	0.30 894	9.95 310	6	51	.6 19.2 18.6
10	9.64 442	26	9.69 138	32	0.30 862	9.95 304	6	50	.7 22.4 21.7
11	9.64 468	26	9.69 170	32	0.30 830	9.95 298	6	49	.8 25.6 24.8
12	9.64 494	25	9.69 202	32	0.30 798	9.95 292	6	48	.9 28.8 27.9
13	9.64 519	26	9.69 234	32	0.30 766	9.95 286	6	47	
14	9.64 545	26	9.69 266	32	0.30 734	9.95 279	7	46	26
15	9.64 571	25	9.69 298	31	0.30 702	9.95 273	6	45	.1 2.6
16	9.64 596	26	9.69 329	32	0.30 671	9.95 267	6	44	.2 5.2
17	9.64 622	25	9.69 361	32	0.30 639	9.95 261	6	43	.3 7.8
18	9.64 647	26	9.69 393	32	0.30 607	9.95 254	7	42	.4 10.4
19	9.64 673	25	9.69 425	32	0.30 575	9.95 248	6	41	.5 13.0
20	9.64 698	26	9.69 457	31	0.30 543	9.95 242	6	40	.6 15.6
21	9.64 724	25	9.69 488	32	0.30 512	9.95 236	6	39	.7 18.2
22	9.64 749	26	9.69 520	32	0.30 480	9.95 229	7	38	.8 20.8
23	9.64 775	25	9.69 552	32	0.30 448	9.95 223	6	37	.9 23.4
24	9.64 800	26	9.69 584	32	0.30 416	9.95 217	6	36	
25	9.64 826	25	9.69 615	31	0.30 385	9.95 211	6	35	25
26	9.64 851	26	9.69 647	32	0.30 353	9.95 204	7	34	.1 2.5
27	9.64 877	25	9.69 679	32	0.30 321	9.95 198	6	33	.2 5.0
28	9.64 902	25	9.69 710	31	0.30 290	9.95 192	6	32	.3 7.5
29	9.64 927	26	9.69 742	32	0.30 258	9.95 185	7	31	.4 10.0
30	9.64 953	25	9.69 774	32	0.30 226	9.95 179	6	30	.5 12.5
31	9.64 978	25	9.69 805	31	0.30 195	9.95 173	6	29	.6 15.0
32	9.65 003	26	9.69 837	32	0.30 163	9.95 167	7	28	.7 17.5
33	9.65 029	25	9.69 868	31	0.30 132	9.95 160	6	27	.8 20.0
34	9.65 054	25	9.69 900	32	0.30 100	9.95 154	6	26	.9 22.5
35	9.65 079	25	9.69 932	32	0.30 068	9.95 148	6	25	
36	9.65 104	26	9.69 963	31	0.30 037	9.95 141	7	24	
37	9.65 130	25	9.69 995	32	0.30 005	9.95 135	6	23	24
38	9.65 155	25	9.70 026	31	0.29 974	9.95 129	6	22	.1 2.4
39	9.65 180	25	9.70 058	32	0.29 942	9.95 122	7	21	.2 4.8
40	9.65 205	25	9.70 089	31	0.29 911	9.95 116	6	20	.3 7.2
41	9.65 230	25	9.70 121	32	0.29 879	9.95 110	6	19	.4 9.6
42	9.65 255	25	9.70 152	31	0.29 848	9.95 103	7	18	.5 12.0
43	9.65 281	26	9.70 184	32	0.29 816	9.95 097	6	17	.6 14.4
44	9.65 306	25	9.70 215	31	0.29 785	9.95 090	7	16	.7 16.8
45	9.65 331	25	9.70 247	32	0.29 753	9.95 084	6	15	.8 19.2
46	9.65 356	25	9.70 278	31	0.29 722	9.95 078	6	14	.9 21.6
47	9.65 381	25	9.70 309	31	0.29 691	9.95 071	7	13	
48	9.65 406	25	9.70 341	32	0.29 659	9.95 065	6	12	
49	9.65 431	25	9.70 372	31	0.29 628	9.95 059	6	11	7 6
50	9.65 456	25	9.70 404	32	0.29 596	9.95 052	7	10	.1 0.7 0.6
51	9.65 481	25	9.70 435	31	0.29 565	9.95 046	6	9	.2 1.4 1.2
52	9.65 506	25	9.70 466	31	0.29 534	9.95 039	7	8	.3 2.1 1.8
53	9.65 531	25	9.70 498	32	0.29 502	9.95 033	6	7	.4 2.8 2.4
54	9.65 556	25	9.70 529	31	0.29 471	9.95 027	6	6	.5 3.5 3.0
55	9.65 580	24	9.70 560	31	0.29 440	9.95 020	7	5	.6 4.2 3.6
56	9.65 605	25	9.70 592	32	0.29 408	9.95 014	6	4	.7 4.9 4.2
57	9.65 630	25	9.70 623	31	0.29 377	9.95 007	7	3	.8 5.6 4.8
58	9.65 655	25	9.70 654	31	0.29 346	9.95 001	6	2	.9 6.3 5.4
59	9.65 680	25	9.70 685	31	0.29 315	9.94 995	6	1	
60	9.65 705	25	9.70 717	32	0.29 283	9.94 988	7	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

63°

27°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.65 705		9.70 717		0.29 283	9.94 988		60	
1	9.65 729	24	9.70 748	31	0.29 252	9.94 982	6	59	
2	9.65 754	25	9.70 779	31	0.29 221	9.94 975	7	58	
3	9.65 779	25	9.70 810	31	0.29 190	9.94 969	6	57	32 31
4	9.65 804	25	9.70 841	32	0.29 159	9.94 962	7	56	1 3.2 3.1
5	9.65 828	24	9.70 873		0.29 127	9.94 956	6		2 6.4 6.2
6	9.65 853	25	9.70 904	31	0.29 096	9.94 949	7	55	.3 9.6 9.3
7	9.65 878	25	9.70 935	31	0.29 065	9.94 943	6	54	.4 12.8 12.4
8	9.65 902	24	9.70 966	31	0.29 034	9.94 936	7	53	.5 16 0 15.5
9	9.65 927	25	9.70 997	31	0.29 003	9.94 930	6	52	.6 19.2 18.6
10	9.65 952	25	9.71 028	31	0.28 972	9 94 923	7	51	.7 22.4 21.7
11	9.65 976	24	9.71 059	31	0.28 941	9.94 917	6	50	.8 25.6 24.8
12	9.66 001	25	9.71 090	31	0.28 910	9.94 911	6	49	.9 28.8 27.9
13	9.66 025	24	9.71 121	31	0.28 879	9.94 904	7	48	
14	9.66 050	25	9.71 153	32	0.28 847	9.94 898	6	47	
15	9.66 075	25	9.71 184	31	0.28 816	9.94 891	7	46	30
16	9.66 099	24	9.71 215	31	0.28 785	9.94 885	6	45	.1 3.0
17	9.66 124	25	9.71 246	31	0.28 754	9.94 878	7	44	.2 6.0
18	9.66 148	24	9.71 277	31	0.28 723	9.94 871	7	43	.3 9.0
19	9.66 173	25	9.71 308	31	0.28 692	9.94 865	6	42	.4 12.0
20	9.66 197	24	9.71 339		0.28 661	9.94 858	7	41	.5 15.0
21	9.66 221	24	9.71 370	31	0.28 630	9.94 852	6	40	6 18.0
22	9 66 246	25	9.71 401	31	0.28 599	9.94 845	7	39	.7 21.0
23	9 66 270	24	9 71 431	30	0.28 569	9.94 839	6	38	.8 24.0
24	9.66 295	25	9.71 462	31	0.28 538	9.94 832	7	37	.9 27.0
25	9.66 319	24	9.71 493	31	0.28 507	9.94 826	6	36	
26	9.66 343	24	9.71 524	31	0.28 476	9.94 819	7	35	
27	9.66 368	25	9.71 555	31	0.28 445	9.94 813	6	34	25 24
28	9.66 392	24	9.71 586	31	0.28 414	9.94 806	7	33	.1 2.5 2.4
29	9.66 416	24	9.71 617	31	0.28 383	9.94 799	7	32	.2 5.0 4.8
30	9 66 441	25	9 71 648	31	0.28 352	9.94 793	6	31	.3 7 5 7.2
31	9 66 465	24	9.71 679	31	0.28 321	9.94 786	7	30	.4 10.0 9.6
32	9.66 489	24	9 71 709	30	0.28 291	9.94 780	6	29	.5 12.5 12.0
33	9.66 513	24	9 71 740	31	0.28 260	9.94 773	7	28	.6 15.0 14.4
34	9.66 537	24	9.71 771	31	0.28 229	9.94 767	6	27	.7 17.5 16.8
35	9.66 562	25	9.71 802	31	0.28 198	9.94 760	7	26	.8 20.0 19.2
36	9.66 586	24	9.71 833	31	0.28 167	9.94 753	7	25	.9 22.5 21.6
37	9.66 610	24	9.71 863	30	0.28 137	9.94 747	6	24	
38	9.66 634	24	9.71 894	31	0.28 106	9.94 740	7	23	
39	9.66 658	24	9.71 925	31	0.28 075	9.94 734	6	22	23
40	9.66 682	24	9.71 955	30	0.28 045	9.94 727	7	21	.1 2.3
41	9.66 706	24	9.71 986	31	0.28 014	9.94 720	7	20	.2 4.6
42	9.66 731	25	9.72 017	31	0.27 983	9.94 714	6	19	.3 6.9
43	9.66 755	24	9.72 048	31	0.27 952	9.94 707	7	18	.4 9.2
44	9.66 779	24	9.72 078	30	0.27 922	9.94 700	7	17	5 11.5
45	9.66 803	24	9.72 109	31	0 27 891	9.94 694	6	16	.6 13.8
46	9.66 827	24	9.72 140	31	0.27 860	9.94 687	7	15	.7 16.1
47	9.66 851	24	9.72 170	30	0.27 830	9.94 680	7	14	.8 18.4
48	9.66 875	24	9.72 201	31	0.27 799	9.94 674	6	13	.9 20 7
49	9.66 899	24	9.72 231	30	0.27 769	9.94 667	7	12	
50	9.66 922	23	9.72 262	31	0.27 738	9.94 660	7	11	
51	9.66 946	24	9.72 293	31	0.27 707	9.94 654	6	10	7 6
52	9.66 970	24	9.72 323	30	0.27 677	9 94 647	7	9	.1 0.7 0.6
53	9.66 994	24	9.72 354	31	0.27 646	9.94 640	7	8	.2 1.4 1.2
54	9.67 018	24	9.72 384	30	0.27 616	9.94 634	6	7	.3 2.1 1.8
55	9.67 042	24	9.72 415	31	0.27 585	9.94 627	7	6	.4 2.8 2.4
56	9.67 066	24	9 72 445	30	0.27 555	9.94 620	7	5	.5 3.5 3.0
57	9.67 090	24	9.72 476	31	0.27 524	9.94 614	6	4	.6 4.2 3.6
58	9.67 113	23	9.72 506	30	0.27 494	9.94 607	7	3	.7 4.9 4.2
59	9.67 137	24	9.72 537	31	0.27 463	9.94 600	7	2	.8 5.6 4.8
60	9.67 161	24	9.72 567	30	0.27 433	9.94 593	7	1	.9 6.3 5.4
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	0	
								′	Prop. Pts.

62°

28°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.67 161		9.72 567		0.27 433	9.94 593		60	
1	9.67 185	24	9.72 598	31	0.27 402	9.94 587	6	59	
2	9.67 208	23	9.72 628	30	0.27 372	9.94 580	7	58	
3	9.67 232	24	9.72 659	31	0.27 341	9.94 573	7	57	31 30
4	9.67 256	24	9.72 689	30	0.27 311	9.94 567	6	56	.1 3.1 3.0
5	9.67 280	24	9.72 720	31	0.27 280	9.94 560	7	55	.2 6.2 6.0
6	9.67 303	23	9.72 750	30	0.27 250	9.94 553	7	54	.3 9.3 9.0
7	9.67 327	24	9.72 780	30	0.27 220	9.94 546	7	53	.4 12.4 12.0
8	9.67 350	23	9.72 811	31	0.27 189	9.94 540	5	52	.5 15.5 15.0
9	9.67 374	24	9.72 841	30	0.27 159	9.94 533	7	51	.6 18.6 18.0
10	9.67 398	24	9.72 872	31	0.27 128	9.94 526	7	50	.7 21.7 21.0
11	9.67 421	23	9.72 902	30	0.27 098	9.94 519	7	49	.8 24.8 24.0
12	9.67 445	24	9.72 932	30	0.27 068	9.94 513	6	48	.9 27.9 27.0
13	9.67 468	23	9.72 963	31	0.27 037	9.94 506	7	47	
14	9.67 492	24	9.72 993	30	0.27 007	9.94 499	7	46	29
15	9.67 515	23	9.73 023	30	0.26 977	9.94 492	7	45	.1 2.9
16	9.67 539	24	9.73 054	31	0.26 946	9.94 485	7	44	.2 5.8
17	9.67 562	23	9.73 084	30	0.26 916	9.94 479	6	43	.3 8.7
18	9.67 586	24	9.73 114	30	0.26 886	9.94 472	7	42	.4 11.6
19	9.67 609	23	9.73 144	30	0.26 856	9.94 465	7	41	.5 14.5
20	9.67 633	24	9.73 175	31	0.26 825	9.94 458	7	40	.6 17.4
21	9.67 656	23	9.73 205	30	0.26 795	9.94 451	7	39	.7 20.3
22	9.67 680	24	9.73 235	30	0.26 765	9.94 445	6	38	.8 23.2
23	9.67 703	23	9.73 265	30	0.26 735	9.94 438	7	37	.9 26.1
24	9.67 726	23	9.73 295	30	0.26 705	9.94 431	7	36	
25	9.67 750	24	9.73 326	31	0.26 674	9.94 424	7	35	24 23
26	9.67 773	23	9.73 356	30	0.26 644	9.94 417	7	34	.1 2.4 2.3
27	9.67 796	23	9.73 386	30	0.26 614	9.94 410	7	33	.2 4.8 4.6
28	9.67 820	24	9.73 416	30	0.26 584	9.94 404	6	32	.3 7.2 6.9
29	9.67 843	23	9.73 446	30	0.26 554	9.94 397	7	31	.4 9.6 9.2
30	9.67 866	23	9.73 476	30	0.26 524	9.94 390	7	30	.5 12.0 11.5
31	9.67 890	24	9.73 507	31	0.26 493	9.94 383	7	29	.6 14.4 13.8
32	9.67 913	23	9.73 537	30	0.26 463	9.94 376	7	28	.7 16.8 16.1
33	9.67 936	23	9.73 567	30	0.26 433	9.94 369	7	27	.8 19.2 18.4
34	9.67 959	23	9.73 597	30	0.26 403	9.94 362	7	26	.9 21.6 20.7
35	9.67 982	23	9.73 627	30	0.26 373	9.94 355	7	25	
36	9.68 006	24	9.73 657	30	0.26 343	9.94 349	6	24	
37	9.68 029	23	9.73 687	30	0.26 313	9.94 342	7	23	
38	9.68 052	23	9.73 717	30	0.26 283	9.94 335	7	22	22
39	9.68 075	23	9.73 747	30	0.26 253	9.94 328	7	21	.1 2.2
40	9.68 098	23	9.73 777	30	0.26 223	9.94 321	7	20	.2 4.4
41	9.68 121	23	9.73 807	30	0.26 193	9.94 314	7	19	.3 6.6
42	9.68 144	23	9.73 837	30	0.26 163	9.94 307	7	18	.4 8.8
43	9.68 167	23	9.73 867	30	0 26 133	9.94 300	7	17	.5 11.0
44	9.68 190	23	9.73 897	30	0.26 103	9.94 293	7	16	.6 13.2
45	9.68 213	24	9.73 927	30	0.26 073	9 94 286	7	15	.7 15.4
46	9.68 237	23	9.73 957	30	0 26 043	9.94 279	7	14	.8 17.6
47	9.68 260	23	9.73 987	30	0.26 013	9.94 273	6	13	.9 19.8
48	9.68 283	23	9.74 017	30	0.25 983	9.94 266	7	12	
49	9.68 305	22	9.74 047	30	0.25 953	9.94 259	7	11	
50	9.68 328	23	9.74 077	30	0.25 923	9.94 252	7	10	7 6
51	9.68 351	23	9.74 107	30	0.25 893	9.94 245	7	9	.1 0.7 0.6
52	9.68 374	23	9.74 137	30	0.25 863	9.94 238	7	8	.2 1.4 1.2
53	9.68 397	23	9.74 166	29	0.25 834	9.94 231	7	7	.3 2.1 1.8
54	9.68 420	23	9.74 196	30	0.25 804	9.94 224	7	6	.4 2 8 2.4
55	9.68 443	23	9.74 226	30	0.25 774	9.94 217	7	5	.5 3 5 3.0
56	9.68 466	23	9.74 256	30	0.25 744	9.94 210	7	4	.6 4.2 3.6
57	9.68 489	23	9.74 286	30	0.25 714	9.94 203	7	3	.7 4.9 4.2
58	9.68 512	23	9.74 316	30	0.25 684	9.94 196	7	2	.8 5.6 4.8
59	9.68 534	22	9.74 345	29	0.25 655	9.94 189	7	1	.9 6.3 5.4
60	9.68 557	23	9.74 375	30	0.25 625	9.94 182	7	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

61°

29°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.68 557		9.74 375		0.25 625	9.94 182		60	
1	9.68 580	23	9.74 405	30	0.25 595	9.94 175	7	59	
2	9.68 603	23	9.74 435	30	0.25 565	9.94 168	7	58	
3	9.68 625	22	9.74 465	30	0.25 535	9.94 161	7	57	30
4	9.68 648	23	9.74 494	29	0.25 506	9.94 154	7	56	.1 3 0
5	9.68 671	23	9.74 524	30	0.25 476	9.94 147	7	55	.2 6 0
6	9.68 694	22	9.74 554	30	0.25 446	9.94 140	7	54	.3 9 0
7	9.68 716	23	9.74 583	29	0.25 417	9.94 133	7	53	.4 12.0
8	9.68 739	23	9.74 613	30	0.25 387	9.94 126	7	52	.5 15.0
9	9 68 762	22	9.74 643	30	0.25 357	9.94 119	7	51	.6 18.0
10	9 68 784	23	9.74 673	29	0.25 327	9.94 112	7	50	.7 21.0
11	9 68 807	22	9.74 702	30	0.25 298	9.94 105	7	49	.8 24.0
12	9 68 829	23	9.74 732	30	0.25 268	9.94 098	7	48	.9 27.0
13	9 68 852	23	9.74 762	29	0.25 238	9.94 090	8	47	
14	9.68 875	22	9.74 791	30	0.25 209	9.94 083	7	46	29
15	9.68 897	23	9.74 821	30	0.25 179	9.94 076	7	45	.1 2.9
16	9.68 920	22	9.74 851	29	0.25 149	9.94 069	7	44	.2 5.8
17	9.68 942	23	9.74 880	30	0.25 120	9.94 062	7	43	.3 8.7
18	9.68 965	22	9.74 910	29	0.25 090	9.94 055	7	42	.4 11.6
19	9.68 987	23	9.74 939	30	0.25 061	9.94 048	7	41	.5 14.5
20	9.69 010	22	9.74 969	29	0.25 031	9.94 041	7	40	.6 17.4
21	9.69 032	23	9.74 998	30	0.25 002	9.94 034	7	39	.7 20.3
22	9.69 055	22	9.75 028	30	0.24 972	9.94 027	7	38	.8 23.2
23	9.69 077	23	9.75 058	29	0.24 942	9.94 020	7	37	.9 26.1
24	9.69 100	22	9.75 087	30	0.24 913	9.94 012	8	36	
25	9.69 122	22	9.75 117	29	0.24 883	9.94 005	7	35	23
26	9.69 144	23	9.75 146	30	0.24 854	9.93 998	7	34	.1 2.3
27	9.69 167	22	9.75 176	29	0.24 824	9.93 991	7	33	.2 4.6
28	9.69 189	23	9.75 205	30	0.24 795	9.93 984	7	32	.3 6.9
29	9.69 212	22	9.75 235	29	0.24 765	9.93 977	7	31	.4 9.2
30	9.69 234	22	9.75 264	30	0.24 736	9.93 970	7	30	.5 11.5
31	9.69 256	23	9.75 294	29	0.24 706	9.93 963	8	29	.6 13.8
32	9.69 279	22	9.75 323	30	0.24 677	9.93 955	7	28	.7 16.1
33	9.69 301	22	9.75 353	29	0.24 647	9.93 948	7	27	.8 18.4
34	9.69 323	22	9.75 382	29	0.24 618	9.93 941	7	26	.9 20.7
35	9.69 345	23	9.75 411	30	0.24 589	9.93 934	7	25	
36	9.69 368	22	9.75 441	29	0.24 559	9.93 927	7	24	
37	9.69 390	22	9.75 470	30	0.24 530	9.93 920	8	23	22
38	9.69 412	22	9.75 500	29	0.24 500	9.93 912	7	22	.1 2.2
39	9.69 434	22	9.75 529	29	0.24 471	9.93 905	7	21	.2 4.4
40	9.69 456	23	9.75 558	30	0.24 442	9.93 898	7	20	.3 6.6
41	9.69 479	22	9.75 588	29	0.24 412	9.93 891	7	19	.4 8.8
42	9.69 501	22	9.75 617	30	0.24 383	9.93 884	8	18	.5 11.0
43	9.69 523	22	9.75 647	29	0.24 353	9.93 876	7	17	.6 13.2
44	9.69 545	22	9.75 676	29	0.24 324	9.93 869	7	16	.7 15.4
45	9.69 567	22	9.75 705	30	0.24 295	9.93 862	7	15	.8 17.6
46	9.69 589	22	9.75 735	29	0.24 265	9.93 855	8	14	.9 19.8
47	9.69 611	22	9.75 764	29	0.24 236	9.93 847	7	13	
48	9.69 633	22	9.75 793	29	0.24 207	9.93 840	7	12	
49	9.69 655	22	9.75 822	30	0.24 178	9.93 833	7	11	8 7
50	9.69 677	22	9.75 852	29	0.24 148	9.93 826	7	10	.1 0.8 0.7
51	9.69 699	22	9.75 881	29	0.24 119	9.93 819	8	9	.2 1.6 1.4
52	9.69 721	22	9.75 910	29	0.24 090	9.93 811	7	8	.3 2.4 2.1
53	9.69 743	22	9.75 939	30	0.24 061	9.93 804	7	7	.4 3.2 2.8
54	9.69 765	22	9.75 969	29	0.24 031	9.93 797	8	6	.5 4.0 3.5
55	9.69 787	22	9.75 998	29	0.24 002	9.93 789	7	5	.6 4.8 4.2
56	9.69 809	22	9.76 027	29	0.23 973	9.93 782	7	4	.7 5.6 4.9
57	9.69 831	22	9.76 056	29	0.23 944	9.93 775	7	3	.8 6.4 5.6
58	9.69 853	22	9.76 086	30	0.23 914	9.93 768	8	2	.9 7.2 6.3
59	9.69 875	22	9.76 115	29	0.23 885	9.93 760	7	1	
60	9.69 897		9.76 144	29	0.23 856	9.93 753		0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

60°

30°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.69 897	22	9.76 144	29	0.23 856	9.93 753	7	60	
1	9.69 919	22	9.76 173	29	0.23 827	9.93 746	8	59	
2	9.69 941	22	9.76 202	29	0.23 798	9.93 738	7	58	30 29
3	9.69 963	21	9.76 231	30	0.23 769	9.93 731	7	57	.1 3.0 2.9
4	9.69 984	22	9.76 261	29	0.23 739	9.93 724	7	56	.2 6.0 5.8
5	9.70 006	22	9.76 290	29	0.23 710	9.93 717	8	55	.3 9.0 8.7
6	9.70 028	22	9.76 319	29	0.23 681	9.93 709	7	54	.4 12.0 11.6
7	9.70 050	22	9.76 348	29	0.23 652	9.93 702	7	53	.5 15.0 14.5
8	9.70 072	21	9.76 377	29	0.23 623	9.93 695	8	52	.6 18.0 17.4
9	9.70 093	22	9.76 406	29	0.23 594	9.93 687	7	51	.7 21.0 20.3
10	9.70 115	22	9.76 435	29	0.23 565	9.93 680	7	50	.8 24.0 23.2
11	9.70 137	22	9.76 464	29	0.23 536	9.93 673	8	49	.9 27.0 26.1
12	9.70 159	21	9.76 493	29	0.23 507	9.93 665	7	48	
13	9.70 180	22	9.76 522	29	0.23 478	9.93 658	8	47	
14	9.70 202	22	9.76 551	29	0.23 449	9.93 650	7	46	28
15	9.70 224	21	9.76 580	29	0.23 420	9.93 643	7	45	.1 2.8
16	9.70 245	22	9.76 609	30	0.23 391	9.93 636	8	44	.2 5.6
17	9.70 267	21	9.76 639	29	0.23 361	9.93 628	7	43	.3 8.4
18	9.70 288	22	9.76 668	29	0.23 332	9.93 621	7	42	.4 11.2
19	9.70 310	22	9.76 697	29	0.23 303	9.93 614	8	41	.5 14.0
20	9.70 332	21	9.76 725	28	0.23 275	9.93 606	7	40	.6 16.8
21	9.70 353	22	9.76 754	29	0.23 246	9.93 599	8	39	.7 19.6
22	9.70 375	21	9.76 783	29	0.23 217	9.93 591	7	38	.8 22.4
23	9.70 396	22	9.76 812	29	0.23 188	9.93 584	7	37	.9 25.2
24	9.70 418	21	9.76 841	29	0.23 159	9.93 577	7	36	
25	9.70 439	22	9.76 870	29	0.23 130	9.93 569	8	35	22
26	9.70 461	21	9.76 899	29	0.23 101	9.93 562	7	34	.1 2.2
27	9.70 482	22	9.76 928	29	0.23 072	9.93 554	8	33	.2 4.4
28	9.70 504	21	9.76 957	29	0.23 043	9.93 547	7	32	.3 6.6
29	9.70 525	22	9.76 986	29	0.23 014	9.93 539	8	31	.4 8.8
30	9.70 547	21	9.77 015	29	0.22 985	9.93 532	7	30	.5 11.0
31	9.70 568	22	9.77 044	29	0.22 956	9.93 525	8	29	.6 13.2
32	9.70 590	21	9.77 073	28	0.22 927	9.93 517	7	28	.7 15.4
33	9.70 611	22	9.77 101	29	0.22 899	9.93 510	8	27	.8 17.6
34	9.70 633	21	9.77 130	29	0.22 870	9.93 502	7	26	.9 19.8
35	9.70 654	21	9.77 159	29	0.22 841	9.93 495	8	25	
36	9.70 675	22	9.77 188	29	0.22 812	9.93 487	7	24	
37	9.70 697	21	9.77 217	29	0.22 783	9.93 480	8	23	21
38	9.70 718	21	9.77 246	28	0.22 754	9.93 472	7	22	.1 2.1
39	9.70 739	22	9.77 274	29	0.22 726	9.93 465	8	21	.2 4.2
40	9.70 761	21	9.77 303	29	0.22 697	9.93 457	7	20	.3 6.3
41	9.70 782	21	9.77 332	29	0.22 668	9.93 450	8	19	.4 8.4
42	9.70 803	21	9.77 361	29	0.22 639	9.93 442	7	18	.5 10.5
43	9.70 824	22	9.77 390	28	0.22 610	9.93 435	8	17	.6 12.6
44	9.70 846	21	9.77 418	29	0.22 582	9.93 427	7	16	.7 14.7
45	9.70 867	21	9.77 447	29	0.22 553	9.93 420	8	15	.8 16.8
46	9.70 888	21	9.77 476	29	0.22 524	9.93 412	7	14	.9 18.9
47	9.70 909	22	9.77 505	28	0.22 495	9.93 405	8	13	
48	9.70 931	21	9.77 533	29	0.22 467	9.93 397	7	12	
49	9.70 952	21	9.77 562	29	0.22 438	9.93 390	8	11	8 7
50	9.70 973	21	9.77 591	28	0.22 409	9.93 382	7	10	.1 0.8 0.7
51	9.70 994	21	9.77 619	29	0.22 381	9.93 375	8	9	.2 1.6 1.4
52	9.71 015	21	9.77 648	29	0.22 352	9.93 367	7	8	.3 2.4 2.1
53	9.71 036	22	9.77 677	29	0.22 323	9.93 360	8	7	.4 3.2 2.8
54	9.71 058	21	9.77 706	29	0.22 294	9.93 352	8	6	.5 4.0 3.5
55	9.71 079	21	9.77 734	28	0.22 266	9.93 344	7	5	.6 4.8 4.2
56	9.71 100	21	9.77 763	29	0.22 237	9.93 337	8	4	.7 5.6 4.9
57	9.71 121	21	9.77 791	28	0.22 209	9.93 329	7	3	.8 6.4 5.6
58	9.71 142	21	9.77 820	29	0.22 180	9.93 322	8	2	.9 7.2 6.3
59	9.71 163	21	9.77 849	29	0.22 151	9.93 314	7	1	
60	9.71 184		9.77 877	28	0.22 123	9.93 307	8	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

59°

31°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.71 184	21	9.77 877	29	0.22 123	9.93 307	8	60	
1	9.71 205	21	9.77 906	29	0.22 094	9.93 299	8	59	
2	9.71 226	21	9.77 935	28	0.22 065	9.93 291	7	58	
3	9.71 247	21	9.77 963	29	0.22 037	9.93 284	8	57	29
4	9.71 268	21	9.77 992	28	0.22 008	9.93 276	7	56	.1 2.9
5	9.71 289	21	9.78 020	29	0.21 980	9.93 269	8	55	.2 5.8
6	9.71 310	21	9.78 049	28	0.21 951	9.93 261	8	54	.3 8.7
7	9.71 331	21	9.78 077	29	0.21 923	9.93 253	7	53	.4 11.6
8	9.71 352	21	9.78 106	29	0.21 894	9.93 246	8	52	.5 14.5
9	9.71 373	20	9.78 135	28	0.21 865	9.93 238	8	51	.6 17.4
10	9.71 393	21	9.78 163	29	0.21 837	9.93 230	7	50	.7 20.3
11	9.71 414	21	9.78 192	28	0.21 808	9.93 223	8	49	.8 23.2
12	9.71 435	21	9.78 220	29	0.21 780	9.93 215	8	48	.9 26.1
13	9.71 456	21	9.78 249	28	0.21 751	9.93 207	8	47	
14	9.71 477	21	9.78 277	29	0.21 723	9.93 200	7	46	28
15	9.71 498	21	9.78 306	28	0.21 694	9.93 192	8	45	.1 2.8
16	9.71 519	20	9.78 334	29	0.21 666	9.93 184	8	44	.2 5.6
17	9.71 539	21	9.78 363	28	0.21 637	9.93 177	7	43	.3 8.4
18	9.71 560	21	9.78 391	28	0.21 609	9.93 169	8	42	.4 11.2
19	9.71 581	21	9.78 419	28	0.21 581	9.93 161	8	41	.5 14.0
20	9.71 602	20	9.78 448	29	0.21 552	9.93 154	7	40	.6 16.8
21	9.71 622	21	9.78 476	28	0.21 524	9.93 146	8	39	.7 19.6
22	9.71 643	21	9.78 505	29	0.21 495	9.93 138	8	38	.8 22.4
23	9.71 664	21	9.78 533	28	0.21 467	9.93 131	7	37	.9 25.2
24	9.71 685	20	9.78 562	29	0.21 438	9.93 123	8	36	
25	9.71 705	21	9.78 590	28	0.21 410	9.93 115	8	35	21
26	9.71 726	21	9.78 618	28	0.21 382	9.93 108	7	34	.1 2.1
27	9.71 747	20	9.78 647	29	0.21 353	9.93 100	8	33	.2 4.2
28	9.71 767	21	9.78 675	28	0.21 325	9.93 092	8	32	.3 6.3
29	9.71 788	21	9.78 704	29	0.21 296	9.93 084	8	31	.4 8.4
30	9.71 809	20	9.78 732	28	0.21 268	9.93 077	7	30	.5 10.5
31	9.71 829	21	9.78 760	28	0.21 240	9.93 069	8	29	.6 12.6
32	9.71 850	20	9.78 789	29	0.21 211	9.93 061	8	28	.7 14.7
33	9.71 870	21	9.78 817	28	0.21 183	9.93 053	8	27	.8 16.8
34	9.71 891	20	9.78 845	28	0.21 155	9.93 046	7	26	.9 18.9
35	9.71 911	21	9.78 874	29	0.21 126	9.93 038	8	25	
36	9.71 932	20	9.78 902	28	0.21 098	9.93 030	8	24	
37	9.71 952	21	9.78 930	28	0.21 070	9.93 022	8	23	
38	9.71 973	21	9.78 959	29	0.21 041	9.93 014	8	22	20
39	9.71 994	20	9.78 987	28	0.21 013	9.93 007	7	21	.1 2.0
40	9.72 014	20	9.79 015	28	0.20 985	9.92 999	8	20	.2 4.0
41	9.72 034	21	9.79 043	29	0.20 957	9.92 991	8	19	.3 6.0
42	9.72 055	20	9.79 072	28	0.20 928	9.92 983	8	18	.4 8.0
43	9.72 075	21	9.79 100	28	0.20 900	9.92 976	7	17	.5 10.0
44	9.72 096	20	9.79 128	28	0.20 872	9.92 968	8	16	.6 12.0
45	9.72 116	21	9.79 156	28	0.20 844	9.92 960	8	15	.7 14.0
46	9.72 137	20	9.79 185	29	0.20 815	9.92 952	8	14	.8 16.0
47	9.72 157	20	9.79 213	28	0.20 787	9.92 944	8	13	.9 18.0
48	9.72 177	21	9.79 241	28	0.20 759	9.92 936	8	12	
49	9.72 198	20	9.79 269	28	0.20 731	9.92 929	7	11	8 7
50	9.72 218	20	9.79 297	29	0.20 703	9.92 921	8	10	.1 0.8 0.7
51	9.72 238	21	9.79 326	28	0.20 674	9.92 913	8	9	.2 1.6 1.4
52	9.72 259	20	9.79 354	28	0.20 646	9.92 905	8	8	.3 2.4 2.1
53	9.72 279	20	9.79 382	28	0.20 618	9.92 897	8	7	.4 3.2 2.8
54	9.72 299	21	9.79 410	28	0.20 590	9.92 889	8	6	.5 4.0 3.5
55	9.72 320	20	9.79 438	28	0.20 562	9.92 881	8	5	.6 4.8 4.2
56	9.72 340	20	9.79 466	28	0.20 534	9.92 874	7	4	.7 5.6 4.9
57	9.72 360	21	9.79 495	29	0.20 505	9.92 866	8	3	.8 6.4 5.6
58	9.72 381	20	9.79 523	28	0.20 477	9.92 858	8	2	.9 7.2 6.3
59	9.72 401	20	9.79 551	28	0.20 449	9.92 850	8	1	
60	9.72 421		9.79 579		0.20 421	9.92 842		0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

58°

32°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.72 421	20	9.79 579	28	0.20 421	9.92 842	8	60	
1	9.72 441	20	9.79 607	28	0.20 393	9.92 834	8	59	
2	9 72 461	21	9.79 635	28	0.20 365	9.92 826	8	58	29 28
3	9.72 482	20	9.79 663	28	0.20 337	9.92 818	8	57	.1 2.9 2.8
4	9.72 502	20	9.79 691	28	0.20 309	9.92 810	7	56	.2 5.8 5.6
5	9.72 522	20	9.79 719	28	0.20 281	9.92 803	8	55	.3 8.7 8.4
6	9.72 542	20	9.79 747	29	0.20 253	9.92 795	8	54	.4 11.6 11.2
7	9.72 562	20	9.79 776	28	0.20 224	9.92 787	8	53	.5 14.5 14.0
8	9.72 582	20	9.79 804	28	0.20 196	9.92 779	8	52	.6 17.4 16.8
9	9.72 602	20	9.79 832	28	0.20 168	9.92 771	8	51	.7 20.3 19.6
10	9.72 622	21	9.79 860	28	0.20 140	9.92 763	8	50	.8 23.2 22.4
11	9.72 643	20	9.79 888	28	0.20 112	9.92 755	8	49	.9 26.1 25.2
12	9.72 663	20	9.79 916	28	0.20 084	9.92 747	8	48	
13	9.72 683	20	9.79 944	28	0.20 056	9.92 739	8	47	
14	9.72 703	20	9.79 972	28	0.20 028	9.92 731	8	46	27
15	9.72 723	20	9.80 000	28	0.20 000	9.92 723	8	45	.1 2.7
16	9.72 743	20	9.80 028	28	0.19 972	9.92 715	8	44	.2 5.4
17	9.72 763	20	9.80 056	28	0.19 944	9.92 707	8	43	.3 8.1
18	9.72 783	20	9.80 084	28	0.19 916	9.92 699	8	42	.4 10.8
19	9.72 803	20	9.80 112	28	0.19 888	9.92 691	8	41	.5 13.5
20	9.72 823	20	9.80 140	28	0.19 860	9.92 683	8	40	.6 16.2
21	9.72 843	20	9.80 168	27	0.19 832	9.92 675	8	39	.7 18.9
22	9.72 863	20	9.80 195	28	0.19 805	9.92 667	8	38	.8 21.6
23	9.72 883	19	9.80 223	28	0.19 777	9.92 659	8	37	.9 24.3
24	9.72 902	20	9.80 251	28	0.19 749	9.92 651	8	36	
25	9.72 922	20	9.80 279	28	0.19 721	9.92 643	8	35	21 20
26	9.72 942	20	9.80 307	28	0.19 693	9.92 635	8	34	.1 2 1 2.0
27	9.72 962	20	9.80 335	28	0.19 665	9.92 627	8	33	.2 4.2 4.0
28	9.72 982	20	9.80 363	28	0.19 637	9.92 619	8	32	.3 6.3 6.0
29	9.73 002	20	9.80 391	28	0.19 609	9.92 611	8	31	.4 8.4 8.0
30	9.73 022	19	9.80 419	28	0.19 581	9.92 603	8	30	.5 10.5 10.0
31	9.73 041	20	9.80 447	27	0.19 553	9.92 595	8	29	.6 12.6 12.0
32	9.73 061	20	9.80 474	28	0.19 526	9.92 587	8	28	.7 14.7 14.0
33	9.73 081	20	9.80 502	28	0.19 498	9.92 579	8	27	.8 16.8 16.0
34	9.73 101	20	9.80 530	28	0.19 470	9.92 571	8	26	.9 18.9 18.0
35	9.73 121	19	9.80 558	28	0.19 442	9.92 563	8	25	
36	9.73 140	20	9.80 586	28	0.19 414	9.92 555	8	24	
37	9.73 160	20	9.80 614	28	0.19 386	9.92 546	9	23	
38	9.73 180	20	9.80 642	27	0.19 358	9.92 538	8	22	19 9
39	9.73 200	19	9.80 669	28	0.19 331	9.92 530	8	21	.1 1.9 0.9
40	9.73 219	20	9.80 697	28	0.19 303	9.92 522	8	20	.2 3.8 1.8
41	9.73 239	20	9.80 725	28	0.19 275	9.92 514	8	19	.3 5.7 2.7
42	9.73 259	19	9.80 753	28	0.19 247	9.92 506	8	18	.4 7.6 3.6
43	9.73 278	20	9.80 781	27	0.19 219	9.92 498	8	17	.5 9.5 4.5
44	9.73 298	20	9.80 808	28	0.19 192	9.92 490	8	16	.6 11.4 5.4
45	9.73 318	19	9.80 836	28	0.19 164	9.92 482	8	15	.7 13.3 6.3
46	9.73 337	20	9.80 864	28	0.19 136	9.92 473	9	14	.8 15.2 7.2
47	9.73 357	20	9.80 892	27	0.19 108	9.92 465	8	13	.9 17.1 8.1
48	9.73 377	19	9.80 919	28	0.19 081	9.92 457	8	12	
49	9.73 396	20	9.80 947	28	0.19 053	9.92 449	8	11	
50	9.73 416	19	9.80 975	28	0.19 025	9.92 441	8	10	8 7
51	9.73 435	20	9.81 003	27	0.18 997	9.92 433	8	9	1 0.8 0.7
52	9.73 455	19	9.81 030	28	0.18 970	9.92 425	8	8	.2 1.6 1.4
53	9.73 474	20	9.81 058	28	0.18 942	9.92 416	9	7	.3 2.4 2.1
54	9.73 494	19	9.81 086	27	0.18 914	9.92 408	8	6	.4 3 2 2.8
55	9.73 513	20	9.81 113	28	0.18 887	9.92 400	8	5	.5 4.0 3 5
56	9.73 533	19	9 81 141	28	0.18 859	9.92 392	8	4	.6 4.8 4 2
57	9 73 552	20	9.81 169	27	0.18 831	9.92 384	8	3	.7 5.6 4 9
58	9.73 572	19	9.81 196	28	0.18 804	9.92 376	8	2	.8 6.4 5.6
59	9.73 591	20	9 81 224	28	0.18 776	9.92 367	9	1	.9 7.2 6.3
60	9.73 611		9.81 252		0.18 748	9.92 359	8	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

57°

33°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9·73 611	19	9.81 252	27	0.18 748	9.92 359	8	60	
1	9·73 630	20	9.81 279	28	0.18 721	9.92 351	8	59	
2	9·73 650	19	9.81 307	28	0.18 693	9.92 343	8	58	28 27
3	9·73 669	20	9.81 335	27	0.18 665	9.92 335	9	57	.1 2.8 2.7
4	9·73 689	19	9.81 362	28	0.18 638	9.92 326	8	56	.2 5.6 5.4
5	9·73 708	19	9.81 390	28	0.18 610	9.92 318	8	55	.3 8.4 8.1
6	9·73 727	20	9.81 418	27	0.18 582	9.92 310	8	54	.4 11.2 10.8
7	9·73 747	19	9.81 445	28	0.18 555	9.92 302	9	53	.5 14.0 13.5
8	9·73 766	19	9.81 473	27	0.18 527	9.92 293	8	52	.6 16.8 16.2
9	9·73 785	20	9.81 500	28	0.18 500	9.92 285	8	51	.7 19.6 18.9
10	9·73 805	19	9.81 528	28	0.18 472	9.92 277	8	50	.8 22.4 21.6
11	9·73 824	19	9.81 556	27	0.18 444	9.92 269	9	49	.9 25.2 24.3
12	9·73 843	20	9.81 583	28	0.18 417	9.92 260	8	48	
13	9·73 863	19	9.81 611	27	0.18 389	9.92 252	8	47	
14	9·73 882	19	9.81 638	28	0.18 362	9.92 244	9	46	20
15	9·73 901	20	9.81 666	27	0.18 334	9.92 235	8	45	.1 2.0
16	9·73 921	19	9.81 693	28	0.18 307	9.92 227	8	44	.2 4.0
17	9·73 940	19	9.81 721	27	0.18 279	9.92 219	8	43	.3 6.0
18	9·73 959	19	9.81 748	28	0.18 252	9.92 211	9	42	.4 8.0
19	9·73 978	19	9.81 776	27	0.18 224	9.92 202	8	41	.5 10.0
20	9·73 997	20	9.81 803	28	0.18 197	9.92 194	8	40	.6 12.0
21	9·74 017	19	9.81 831	27	0.18 169	9.92 186	8	39	.7 14.0
22	9·74 036	19	9.81 858	28	0.18 142	9.92 177	9	38	.8 16.0
23	9·74 055	19	9.81 886	27	0.18 114	9.92 169	8	37	.9 18.0
24	9·74 074	19	9.81 913	28	0.18 087	9.92 161	8	36	
25	9·74 093	20	9.81 941	27	0.18 059	9.92 152	9	35	19
26	9·74 113	19	9.81 968	28	0.18 032	9.92 144	8	34	.1 1.9
27	9·74 132	19	9.81 996	27	0.18 004	9.92 136	8	33	.2 3.8
28	9·74 151	19	9.82 023	28	0.17 977	9.92 127	9	32	.3 5.7
29	9·74 170	19	9.82 051	27	0.17 949	9.92 119	8	31	.4 7.6
30	9·74 189	19	9.82 078	28	0.17 922	9.92 111	8	30	.5 9.5
31	9·74 208	19	9.82 106	27	0.17 894	9.92 102	9	29	.6 11.4
32	9·74 227	19	9.82 133	28	0.17 867	9.92 094	8	28	.7 13.3
33	9·74 246	19	9.82 161	27	0.17 839	9.92 086	8	27	.8 15.2
34	9·74 265	19	9.82 188	27	0.17 812	9.92 077	9	26	.9 17.1
35	9·74 284	19	9.82 215	28	0.17 785	9.92 069	8	25	
36	9·74 303	19	9.82 243	27	0.17 757	9.92 060	9	24	
37	9·74 322	19	9.82 270	28	0.17 730	9.92 052	8	23	18
38	9·74 341	19	9.82 298	27	0.17 702	9.92 044	8	22	.1 1.8
39	9·74 360	19	9.82 325	27	0.17 675	9.92 035	9	21	2 3.6
40	9·74 379	19	9.82 352	28	0.17 648	9.92 027	8	20	.3 5.4
41	9·74 398	19	9.82 380	27	0.17 620	9.92 018	9	19	.4 7.2
42	9·74 417	19	9.82 407	28	0.17 593	9.92 010	8	18	.5 9.0
43	9·74 436	19	9.82 435	27	0.17 565	9.92 002	8	17	.6 10.8
44	9·74 455	19	9.82 462	27	0.17 538	9.91 993	9	16	.7 12.6
45	9·74 474	19	9.82 489	28	0.17 511	9.91 985	8	15	.8 14.4
46	9·74 493	19	9.82 517	27	0.17 483	9.91 976	9	14	.9 16.2
47	9·74 512	19	9.82 544	27	0.17 456	9.91 968	8	13	
48	9·74 531	18	9.82 571	28	0.17 429	9.91 959	9	12	
49	9·74 549	19	9.82 599	27	0.17 401	9.91 951	8	11	9 8
50	9·74 568	19	9.82 626	27	0.17 374	9.91 942	9	10	.1 0.9 0.8
51	9·74 587	19	9.82 653	28	0.17 347	9.91 934	8	9	.2 1.8 1.6
52	9·74 606	19	9.82 681	27	0.17 319	9.91 925	9	8	.3 2.7 2.4
53	9·74 625	19	9.82 708	27	0.17 292	9.91 917	8	7	.4 3.6 3.2
54	9·74 644	18	9.82 735	27	0.17 265	9.91 908	9	6	.5 4.5 4.0
55	9·74 662	19	9.82 762	28	0.17 238	9.91 900	8	5	.6 5.4 4.8
56	9·74 681	19	9.82 790	27	0.17 210	9.91 891	9	4	.7 6.3 5.6
57	9·74 700	19	9.82 817	27	0.17 183	9.91 883	8	3	.8 7.2 6.4
58	9·74 719	19	9.82 844	27	0.17 156	9.91 874	9	2	.9 8.1 7.2
59	9·74 737	18	9.82 871	27	0.17 129	9.91 866	8	1	
60	9·74 756	19	9.82 899	28	0.17 101	9.91 857	9	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

56°

34°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.74 756	19	9.82 899	27	0.17 101	9.91 857	8	60	
1	9.74 775	19	9.82 926	27	0.17 074	9.91 849	9	59	
2	9.74 794	18	9.82 953	27	0.17 047	9.91 840	8	58	
3	9.74 812	19	9.82 980	28	0.17 020	9.91 832	9	57	28 27
4	9.74 831	19	9.83 008	27	0.16 992	9.91 823	8	56	.1 2.8 2.7
5	9.74 850	18	9.83 035	27	0.16 965	9.91 815	9	55	.2 5.6 5.4
6	9.74 868	19	9.83 062	27	0.16 938	9.91 806	8	54	.3 8.4 8.1
7	9.74 887	19	9.83 089	28	0.16 911	9.91 798	9	53	.4 11.2 10.8
8	9.74 906	18	9.83 117	27	0.16 883	9.91 789	8	52	.5 14.0 13.5
9	9.74 924	19	9.83 144	27	0.16 856	9.91 781	9	51	.6 16.8 16.2
10	9.74 943	18	9.83 171	27	0.16 829	9.91 772	9	50	.7 19.6 18.9
11	9.74 961	19	9.83 198	27	0.16 802	9.91 763	9	49	.8 22.4 21.6
12	9.74 980	19	9.83 225	27	0.16 775	9.91 755	8	48	.9 25.2 24.3
13	9.74 999	19	9.83 252	28	0.16 748	9.91 746	9	47	
14	9.75 017	18	9.83 280	27	0.16 720	9.91 738	8	46	
15	9.75 036	19	9.83 307	27	0.16 693	9.91 729	9	45	26
16	9.75 054	18	9.83 334	27	0.16 666	9.91 720	9	44	.1 2.6
17	9.75 073	19	9.83 361	27	0.16 639	9.91 712	8	43	.2 5.2
18	9.75 091	18	9.83 388	27	0.16 612	9.91 703	9	42	.3 7.8
19	9.75 110	19	9.83 415	27	0.16 585	9.91 695	8	41	.4 10.4
20	9.75 128	18	9.83 442	27	0.16 558	9.91 686	9	40	.5 13.0
21	9.75 147	19	9.83 470	28	0.16 530	9.91 677	9	39	.6 15.6
22	9.75 165	18	9.83 497	27	0.16 503	9.91 669	9	38	.7 18.2
23	9.75 184	19	9.83 524	27	0.16 476	9.91 660	8	37	.8 20.8
24	9.75 202	18	9.83 551	27	0 16 449	9.91 651	9	36	.9 23.4
25	9.75 221	19	9.83 578	27	0.16 422	9.91 643	9	35	
26	9.75 239	18	9.83 605	27	0.16 395	9.91 634	9	34	19
27	9.75 258	19	9.83 632	27	0.16 368	9.91 625	9	33	.1 1.9
28	9.75 276	18	9.83 659	27	0.16 341	9.91 617	8	32	.2 3.8
29	9.75 294	18	9.83 686	27	0.16 314	9.91 608	9	31	.3 5.7
30	9.75 313	19	9.83 713	27	0.16 287	9.91 599	9	30	.4 7.6
31	9.75 331	18	9.83 740	28	0.16 260	9.91 591	8	29	.5 9.5
32	9 75 350	19	9.83 768	27	0.16 232	9 91 582	9	28	.6 11.4
33	9.75 368	18	9.83 795	27	0.16 205	9.91 573	9	27	.7 13.3
34	9.75 386	18	9.83 822	27	0.16 178	9.91 565	8	26	.8 15.2
35	9.75 405	19	9.83 849	27	0.16 151	9.91 556	9	25	.9 17.1
36	9.75 423	18	9.83 876	27	0.16 124	9 91 547	9	24	
37	9.75 441	18	9.83 903	27	0.16 097	9.91 538	9	23	
38	9.75 459	18	9.83 930	27	0.16 070	9.91 530	8	22	18
39	9.75 478	19	9.83 957	27	0.16 043	9.91 521	9	21	.1 1.8
40	9.75 496	18	9.83 984	27	0 16 016	9.91 512	9	20	.2 3.6
41	9.75 514	18	9.84 011	27	0.15 989	9.91 504	8	19	.3 5.4
42	9.75 533	18	9.84 038	27	0.15 962	9.91 495	9	18	.4 7.2
43	9.75 551	18	9.84 065	27	0.15 935	9.91 486	9	17	.5 9.0
44	9.75 569	18	9.84 092	27	0.15 908	9.91 477	9	16	.6 10.8
45	9.75 587	18	9.84 119	27	0.15 881	9.91 469	8	15	.7 12.6
46	9.75 605	19	9.84 146	27	0.15 854	9.91 460	9	14	.8 14.4
47	9 75 624	18	9.84 173	27	0.15 827	9.91 451	9	13	.9 16.2
48	9.75 642	18	9.84 200	27	0.15 800	9.91 442	9	12	
49	9.75 660	18	9.84 227	27	0.15 773	9.91 433	9	11	
50	9.75 678	18	9.84 254	26	0.15 746	9.91 425	8	10	9 8
51	9.75 696	18	9.84 280	27	0.15 720	9.91 416	9	9	.1 0.9 0.8
52	9.75 714	19	9.84 307	27	0.15 693	9.91 407	9	8	.2 1.8 1.6
53	9.75 733	18	9.84 334	27	0.15 666	9.91 398	9	7	.3 2 7 2.4
54	9.75 751	18	9.84 361	27	0.15 639	9.91 389	9	6	.4 3 6 3.2
55	9.75 769	18	9.84 388	27	0.15 612	9.91 381	8	5	.5 4.5 4 0
56	9.75 787	18	9.84 415	27	0.15 585	9.91 372	9	4	.6 5.4 4 8
57	9.75 805	18	9.84 442	27	0.15 558	9.91 363	9	3	.7 6.3 5 6
58	9.75 823	18	9.84 469	27	0.15 531	9.91 354	9	2	.8 7.2 6.4
59	9.75 841	18	9.84 496	27	0.15 504	9.91 345	9	1	.9 8.1 7.2
60	9.75 859		9.84 523		0.15 477	9.91 336	9	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

55°

35°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.75 859	18	9.84 523	27	0.15 477	9.91 336	8	60	
1	9.75 877	18	9.84 550	26	0.15 450	9.91 328	9	59	
2	9.75 895	18	9.84 576	27	0.15 424	9.91 319	9	58	27 26
3	9.75 913	18	9.84 603	27	0.15 397	9.91 310	9	57	.1 2.7 2.6
4	9.75 931	18	9.84 630	27	0.15 370	9.91 301	9	56	.2 5.4 5.2
5	9.75 949	18	9.84 657	27	0.15 343	9.91 292	9	55	.3 8.1 7.8
6	9.75 967	18	9.84 684	27	0.15 316	9.91 283	9	54	.4 10.8 10.4
7	9.75 985	18	9.84 711	27	0.15 289	9.91 274	8	53	.5 13.5 13.0
8	9.76 003	18	9.84 738	26	0.15 262	9.91 266	9	52	.6 16.2 15.6
9	9.76 021	18	9.84 764	27	0.15 236	9.91 257	9	51	.7 18.9 18.2
10	9.76 039	18	9.84 791	27	0.15 209	9.91 248	9	50	.8 21.6 20.8
11	9.76 057	18	9.84 818	27	0.15 182	9.91 239	9	49	.9 24.3 23.4
12	9.76 075	18	9.84 845	27	0.15 155	9.91 230	9	48	
13	9.76 093	18	9.84 872	27	0.15 128	9.91 221	9	47	
14	9.76 111	18	9.84 899	26	0.15 101	9.91 212	9	46	18
15	9.76 129	17	9.84 925	27	0.15 075	9.91 203	9	45	.1 1.8
16	9.76 146	18	9.84 952	27	0.15 048	9.91 194	9	44	.2 3.6
17	9.76 164	18	9.84 979	27	0.15 021	9.91 185	9	43	.3 5.4
18	9.76 182	18	9.85 006	27	0.14 994	9.91 176	9	42	.4 7.2
19	9.76 200	18	9.85 033	26	0.14 967	9.91 167	9	41	.5 9.0
20	9.76 218	18	9.85 059	27	0.14 941	9.91 158	9	40	.6 10.8
21	9.76 236	17	9.85 086	27	0.14 914	9.91 149	8	39	.7 12.6
22	9.76 253	18	9.85 113	27	0.14 887	9.91 141	9	38	.8 14.4
23	9.76 271	18	9.85 140	26	0.14 860	9.91 132	9	37	.9 16.2
24	9 76 289	18	9.85 166	27	0.14 834	9.91 123	9	36	
25	9.76 307	17	9.85 193	27	0.14 807	9.91 114	9	35	17
26	9.76 324	18	9.85 220	27	0.14 780	9.91 105	9	34	.1 1.7
27	9.76 342	18	9.85 247	26	0.14 753	9 91 096	9	33	.2 3.4
28	9.76 360	18	9.85 273	27	0.14 727	9.91 087	9	32	.3 5.1
29	9.76 378	17	9 85 300	27	0.14 700	9.91 078	9	31	.4 6.8
30	9.76 395	18	9.85 327	27	0.14 673	9.91 069	9	30	.5 8.5
31	9.76 413	18	9.85 354	26	0.14 646	9.91 060	9	29	.6 10.2
32	9.76 431	17	9.85 380	27	0.14 620	9.91 051	9	28	.7 11.9
33	9.76 448	18	9.85 407	27	0.14 593	9.91 042	9	27	.8 13.6
34	9.76 466	18	9.85 434	26	0.14 566	9.91 033	10	26	.9 15.3
35	9.76 484	17	9.85 460	27	0.14 540	9.91 023	9	25	
36	9.76 501	18	9.85 487	27	0.14 513	9.91 014	9	24	
37	9.76 519	18	9.85 514	26	0.14 486	9.91 005	9	23	10
38	9.76 537	17	9.85 540	27	0.14 460	9.90 996	9	22	.1 1.0
39	9.76 554	18	9.85 567	27	0.14 433	9.90 987	9	21	.2 2.0
40	9.76 572	18	9.85 594	26	0.14 406	9.90 978	9	20	.3 3.0
41	9.76 590	17	9.85 620	27	0.14 380	9.90 969	9	19	.4 4.0
42	9.76 607	18	9.85 647	27	0.14 353	9.90 960	9	18	.5 5.0
43	9.76 625	17	9.85 674	26	0.14 326	9.90 951	9	17	.6 6.0
44	9.76 642	18	9.85 700	27	0.14 300	9.90 942	9	16	.7 7.0
45	9.76 660	17	9.85 727	27	0.14 273	9.90 933	9	15	.8 8.0
46	9.76 677	18	9.85 754	26	0.14 246	9.90 924	9	14	.9 9.0
47	9.76 695	17	9.85 780	27	0.14 220	9.90 915	9	13	
48	9.76 712	18	9.85 807	27	0.14 193	9.90 906	9	12	
49	9.76 730	17	9.85 834	26	0.14 166	9.90 896	10	11	9 8
50	9.76 747	18	9 85 860	27	0.14 140	9.90 887	9	10	.1 0.9 0.8
51	9 76 765	17	9 85 887	26	0.14 113	9.90 878	9	9	.2 1.8 1.6
52	9.76 782	17	9 85 913	27	0.14 087	9.90 869	9	8	.3 2.7 2.4
53	9.76 800	18	9 85 940	27	0.14 060	9.90 860	9	7	.4 3.6 3.2
54	9.76 817	17	9 85 967	27	0.14 033	9.90 851	9	6	.5 4.5 4.0
55	9 76 835	18	9 85 993	26	0.14 007	9.90 842	9	5	.6 5.4 4.8
56	9 76 852	17	9 86 020	27	0.13 980	9.90 832	10	4	.7 6.3 5.6
57	9 76 870	18	9 86 046	26	0.13 954	9.90 823	9	3	.8 7.2 6.4
58	9 76 887	17	9 86 073	27	0.13 927	9.90 814	9	2	.9 8.1 7.2
59	9 76 904	17	9 86 100	27	0.13 900	9.90 805	9	1	
60	9.76 922	18	9.86 126	26	0.13 874	9.90 796	9	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

36°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.76 922		9.86 126		0.13 874	9.90 796		60	
1	9.76 939	17	9.86 153	27	0.13 847	9.90 787	9	59	
2	9.76 957	18	9.86 179	26	0.13 821	9.90 777	10	58	
3	9.76 974	17	9.86 206	27	0.13 794	9.90 768	9	57	27 26
4	9.76 991	17	9.86 232	26	0.13 768	9.90 759	9	56	.1 2.7 2.6
5	9.77 009	18	9.86 259	27	0.13 741	9.90 750	9	55	.2 5.4 5.2
6	9.77 026	17	9.86 285	26	0.13 715	9.90 741	9	54	.3 8.1 7.8
7	9.77 043	17	9.86 312	27	0.13 688	9.90 731	10	53	.4 10.8 10.4
8	9.77 061	18	9.86 338	26	0.13 662	9.90 722	9	52	.5 13.5 13.0
9	9.77 078	17	9.86 365	27	0.13 635	9.90 713	9	51	.6 16.2 15.6
10	9.77 095	17	9.86 392	27	0.13 608	9.90 704	9	50	.7 18.9 18.2
11	9.77 112	17	9.86 418	26	0.13 582	9.90 694	10	49	.8 21.6 20.8
12	9.77 130	18	9.86 445	27	0.13 555	9.90 685	9	48	.9 24.3 23.4
13	9.77 147	17	9.86 471	26	0.13 529	9.90 676	9	47	
14	9.77 164	17	9.86 498	27	0.13 502	9.90 667	9	46	18
15	9.77 181	17	9.86 524	26	0.13 476	9.90 657	10	45	.1 1.8
16	9.77 199	18	9.86 551	27	0.13 449	9.90 648	9	44	.2 3.6
17	9.77 216	17	9.86 577	26	0.13 423	9.90 639	9	43	.3 5.4
18	9.77 233	17	9.86 603	26	0.13 397	9.90 630	9	42	.4 7.2
19	9.77 250	17	9.86 630	27	0.13 370	9.90 620	10	41	.5 9.0
20	9.77 268	18	9.86 656	26	0.13 344	9.90 611	9	40	.6 10.8
21	9.77 285	17	9.86 683	27	0.13 317	9.90 602	9	39	.7 12.6
22	9.77 302	17	9.86 709	26	0.13 291	9.90 592	10	38	.8 14.4
23	9.77 319	17	9.86 736	27	0.13 264	9.90 583	9	37	.9 16.2
24	9.77 336	17	9.86 762	26	0.13 238	9.90 574	9	36	
25	9.77 353	17	9.86 789	27	0.13 211	9.90 565	9	35	17
26	9.77 370	17	9.86 815	26	0.13 185	9.90 555	10	34	.1 1.7
27	9.77 387	17	9.86 842	27	0.13 158	9.90 546	9	33	.2 3.4
28	9.77 405	18	9.86 868	26	0.13 132	9.90 537	9	32	.3 5.1
29	9.77 422	17	9.86 894	26	0.13 106	9.90 527	10	31	.4 6.8
30	9.77 439	17	9.86 921	27	0.13 079	9.90 518	9	30	.5 8.5
31	9.77 456	17	9.86 947	26	0.13 053	9.90 509	9	29	.6 10.2
32	9.77 473	17	9.86 974	27	0.13 026	9.90 499	10	28	.7 11.9
33	9.77 490	17	9.87 000	26	0.13 000	9.90 490	9	27	.8 13.6
34	9.77 507	17	9.87 027	27	0.12 973	9.90 480	10	26	.9 15.3
35	9.77 524	17	9.87 053	26	0.12 947	9.90 471	9	25	
36	9.77 541	17	9.87 079	26	0.12 921	9.90 462	9	24	
37	9.77 558	17	9.87 106	27	0.12 894	9.90 452	10	23	
38	9.77 575	17	9.87 132	26	0.12 868	9.90 443	9	22	16
39	9.77 592	17	9.87 158	26	0.12 842	9.90 434	9	21	.1 1.6
40	9.77 609	17	9.87 185	27	0.12 815	9.90 424	10	20	.2 3.2
41	9.77 626	17	9.87 211	26	0.12 789	9.90 415	9	19	.3 4.8
42	9.77 643	17	9.87 238	27	0.12 762	9.90 405	10	18	.4 6.4
43	9.77 660	17	9.87 264	26	0.12 736	9.90 396	9	17	.5 8.0
44	9.77 677	17	9.87 290	26	0.12 710	9.90 386	10	16	.6 9.6
45	9.77 694	17	9.87 317	27	0.12 683	9.90 377	9	15	.7 11.2
46	9.77 711	17	9.87 343	26	0.12 657	9.90 368	9	14	.8 12.8
47	9.77 728	17	9.87 369	26	0.12 631	9.90 358	10	13	.9 14.4
48	9.77 744	16	9.87 396	27	0.12 604	9.90 349	9	12	
49	9.77 761	17	9.87 422	26	0.12 578	9.90 339	10	11	
50	9.77 778	17	9.87 448	26	0.12 552	9.90 330	9	10	20 9
51	9.77 795	17	9.87 475	27	0.12 525	9.90 320	10	9	.1 1.0 0.9
52	9.77 812	17	9.87 501	26	0.12 499	9.90 311	9	8	.2 2.0 1.8
53	9.77 829	17	9.87 527	26	0.12 473	9.90 301	10	7	.3 3.0 2.7
54	9.77 846	17	9.87 554	27	0.12 446	9.90 292	9	6	.4 4.0 3.6
55	9.77 862	16	9.87 580	26	0.12 420	9.90 282	10	5	.5 5.0 4.5
56	9.77 879	17	9.87 606	26	0.12 394	9.90 273	9	4	.6 6.0 5.4
57	9.77 896	17	9.87 633	27	0.12 367	9.90 263	10	3	.7 7.0 6.3
58	9.77 913	17	9.87 659	26	0.12 341	9.90 254	9	2	.8 8.0 7.2
59	9.77 930	17	9.87 685	26	0.12 315	9.90 244	10	1	.9 9.0 8.1
60	9.77 946	16	9.87 711		0.12 289	9.90 235	9	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

53°

37°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.77 946	17	9.87 711	27	0.12 289	9.90 235	10	60	
1	9.77 963	17	9.87 738	26	0.12 262	9.90 225	9	59	
2	9.77 980	17	9.87 764	26	0.12 236	9.90 216	10	58	
3	9.77 997	16	9.87 790	27	0.12 210	9.90 206	9	57	27
4	9.78 013	17	9.87 817	26	0.12 183	9.90 197	10	56	.1 2.7
5	9.78 030	17	9.87 843	26	0.12 157	9.90 187	9	55	.2 5.4
6	9.78 047	16	9.87 869	26	0.12 131	9.90 178	10	54	.3 8.1
7	9.78 063	17	9.87 895	27	0.12 105	9.90 168	9	53	.4 10.8
8	9.78 080	17	9.87 922	26	0.12 078	9.90 159	10	52	.5 13.5
9	9.78 097	16	9.87 948	26	0.12 052	9.90 149	10	51	.6 16.2
10	9.78 113	17	9.87 974	26	0.12 026	9.90 139	9	50	.7 18.9
11	9.78 130	17	9.88 000	27	0.12 000	9.90 130	10	49	.8 21.6
12	9.78 147	16	9.88 027	26	0.11 973	9.90 120	9	48	.9 24.3
13	9.78 163	17	9.88 053	26	0.11 947	9.90 111	10	47	
14	9.78 180	17	9.88 079	26	0.11 921	9.90 101	10	46	26
15	9.78 197	16	9.88 105	26	0.11 895	9.90 091	9	45	.1 2.6
16	9.78 213	17	9.88 131	27	0.11 869	9.90 082	10	44	.2 5.2
17	9.78 230	16	9.88 158	26	0.11 842	9.90 072	9	43	.3 7.8
18	9.78 246	17	9.88 184	26	0.11 816	9.90 063	10	42	.4 10.4
19	9.78 263	17	9.88 210	26	0.11 790	9.90 053	10	41	.5 13.0
20	9.78 280	16	9.88 236	26	0.11 764	9.90 043	9	40	.6 15.6
21	9.78 296	17	9.88 262	27	0.11 738	9.90 034	10	39	.7 18.2
22	9.78 313	16	9.88 289	26	0.11 711	9.90 024	10	38	.8 20.8
23	9.78 329	17	9.88 315	26	0.11 685	9.90 014	10	37	.9 23.4
24	9.78 346	16	9.88 341	26	0.11 659	9.90 005	9	36	
25	9.78 362	17	9.88 367	26	0.11 633	9.89 995	10	35	17
26	9.78 379	16	9.88 393	27	0.11 607	9.89 985	10	34	.1 1.7
27	9.78 395	17	9.88 420	26	0.11 580	9.89 976	9	33	.2 3.4
28	9.78 412	16	9.88 446	26	0.11 554	9.89 966	10	32	.3 5.1
29	9.78 428	17	9.88 472	26	0.11 528	9.89 956	10	31	.4 6.8
30	9.78 445	16	9.88 498	26	0.11 502	9.89 947	9	30	.5 8.5
31	9.78 461	17	9.88 524	26	0.11 476	9.89 937	10	29	.6 10.2
32	9.78 478	16	9.88 550	27	0.11 450	9.89 927	10	28	.7 11.9
33	9.78 494	16	9.88 577	26	0.11 423	9.89 918	9	27	.8 13.6
34	9.78 510	17	9.88 603	26	0.11 397	9.89 908	10	26	.9 15.3
35	9.78 527	16	9.88 629	26	0.11 371	9.89 898	10	25	
36	9.78 543	17	9.88 655	26	0.11 345	9.89 888	10	24	
37	9.78 560	16	9.88 681	26	0.11 319	9.89 879	9	23	16
38	9.78 576	16	9.88 707	26	0.11 293	9.89 869	10	22	.1 1.6
39	9.78 592	17	9.88 733	26	0.11 267	9.89 859	10	21	.2 3.2
40	9.78 609	16	9.88 759	27	0.11 241	9.89 849	10	20	.3 4.8
41	9.78 625	17	9.88 786	26	0.11 214	9.89 840	9	19	.4 6.4
42	9.78 642	16	9.88 812	26	0.11 188	9.89 830	10	18	.5 8.0
43	9.78 658	16	9.88 838	26	0.11 162	9.89 820	10	17	.6 9.6
44	9.78 674	17	9.88 864	26	0.11 136	9.89 810	10	16	.7 11.2
45	9.78 691	16	9.88 890	26	0.11 110	9.89 801	9	15	.8 12.8
46	9.78 707	16	9.88 916	26	0.11 084	9.89 791	10	14	.9 14.4
47	9.78 723	16	9.88 942	26	0.11 058	9.89 781	10	13	
48	9.78 739	16	9.88 968	26	0.11 032	9.89 771	10	12	
49	9.78 756	17	9.88 994	26	0.11 006	9.89 761	10	11	
50	9.78 772	16	9.89 020	26	0.10 980	9.89 752	9	10	10 9
51	9.78 788	16	9.89 046	26	0.10 954	9.89 742	10	9	.1 1.0 0.9
52	9.78 805	17	9.89 073	27	0.10 927	9.89 732	10	8	.2 2.0 1.8
53	9.78 821	16	9.89 099	26	0.10 901	9.89 722	10	7	3 3.0 2.7
54	9.78 837	16	9.89 125	26	0.10 875	9.89 712	10	6	4 4.0 3.6
55	9.78 853	16	9.89 151	26	0.10 849	9.89 702	10	5	.5 5.0 4.5
56	9.78 869	16	9.89 177	26	0.10 823	9.89 693	9	4	.6 6.0 5.4
57	9.78 886	17	9.89 203	26	0.10 797	9.89 683	10	3	.7 7.0 6.3
58	9.78 902	16	9.89 229	26	0.10 771	9.89 673	10	2	.8 8.0 7.2
59	9.78 918	16	9.89 255	26	0.10 745	9.89 663	10	1	.9 9.0 8.1
60	9.78 934	16	9.89 281	26	0.10 719	9.89 653	10	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

52°

38°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9 78 934	16	9.89 281	26	0.10 719	9 89 653	10	60	
1	9 78 950	17	9.89 307	26	0.10 693	9 89 643	10	59	
2	9 78 967	16	9 89 333	26	0.10 667	9 89 633	10	58	
3	9 78 983	16	9 89 359	26	0.10 641	9 89 624	10	57	26 25
4	9.78 999	16	9.89 385	26	0.10 615	9 89 614	10	56	.1 2.6 2.5
5	9.79 015	16	9.89 411	26	0.10 589	9.89 604	10	55	.2 5.2 5.0
6	9 79 031	16	9.89 437	26	0.10 563	9.89 594	10	54	.3 7.8 7.5
7	9 79 047	16	9.89 463	26	0.10 537	9.89 584	10	53	.4 10.4 10.0
8	9.79 063	16	9 89 489	26	0.10 511	9.89 574	10	52	.5 13.0 12.5
9	9.79 079	16	9.89 515	26	0.10 485	9.89 564	10	51	.6 15.6 15.0
10	9.79 095	16	9.89 541	26	0.10 459	9.89 554	10	50	.7 18.2 17.5
11	9.79 111	17	9.89 567	26	0.10 433	9.89 544	10	49	.8 20.8 20.0
12	9.79 128	16	9.89 593	26	0.10 407	9.89 534	10	48	.9 23.4 22.5
13	9.79 144	16	9.89 619	26	0.10 381	9.89 524	10	47	
14	9.79 160	16	9.89 645	26	0.10 355	9.89 514	10	46	17
15	9.79 176	16	9.89 671	26	0.10 329	9.89 504	10	45	.1 1.7
16	9.79 192	16	9.89 697	26	0.10 303	9.89 495	9	44	.2 3.4
17	9.79 208	16	9.89 723	26	0.10 277	9.89 485	10	43	.3 5.1
18	9.79 224	16	9.89 749	26	0.10 251	9.89 475	10	42	.4 6.8
19	9.79 240	16	9.89 775	26	0.10 225	9.89 465	10	41	.5 8.5
20	9.79 256	16	9.89 801	26	0.10 199	9.89 455	10	40	.6 10.2
21	9.79 272	16	9 89 827	26	0.10 173	9.89 445	10	39	.7 11.9
22	9.79 288	16	9.89 853	26	0.10 147	9.89 435	10	38	.8 13.6
23	9.79 304	16	9.89 879	26	0.10 121	9.89 425	10	37	.9 15.3
24	9.79 319	15	9.89 905	26	0.10 095	9.89 415	10	36	
25	9.79 335	16	9.89 931	26	0.10 069	9.89 405	10	35	16 15
26	9.79 351	16	9.89 957	26	0.10 043	9.89 395	10	34	.1 1.6 1.5
27	9.79 367	16	9.89 983	26	0.10 017	9.89 385	10	33	.2 3.2 3.0
28	9.79 383	16	9.90 009	26	0.09 991	9.89 375	10	32	.3 4.8 4.5
29	9.79 399	16	9.90 035	26	0.09 965	9.89 364	11	31	.4 6.4 6.0
30	9.79 415	16	9.90 061	25	0.09 939	9.89 354	10	30	.5 8.0 7.5
31	9.79 431	16	9.90 086	26	0.09 914	9.89 344	10	29	.6 9.6 9.0
32	9.79 447	16	9.90 112	26	0.09 888	9.89 334	10	28	.7 11.2 10.5
33	9.79 463	16	9.90 138	26	0.09 862	9.89 324	10	27	.8 12.8 12.0
34	9.79 478	15	9.90 164	26	0.09 836	9.89 314	10	26	.9 14.4 13.5
35	9.79 494	16	9.90 190	26	0.09 810	9.89 304	10	25	
36	9.79 510	16	9.90 216	26	0.09 784	9.89 294	10	24	
37	9.79 526	16	9.90 242	26	0.09 758	9.89 284	10	23	
38	9.79 542	16	9.90 268	26	0.09 732	9.89 274	10	22	11
39	9.79 558	15	9.90 294	26	0.09 706	9.89 264	10	21	.1 1.1
40	9.79 573	16	9.90 320	26	0.09 680	9.89 254	10	20	.2 2.2
41	9.79 589	16	9.90 346	26	0.09 654	9.89 244	10	19	.3 3.3
42	9.79 605	16	9.90 371	25	0.09 629	9.89 233	11	18	.4 4.4
43	9.79 621	16	9.90 397	26	0.09 603	9.89 223	10	17	.5 5.5
44	9.79 636	15	9.90 423	26	0.09 577	9.89 213	10	16	.6 6.6
45	9.79 652	16	9.90 449	26	0.09 551	9.89 203	10	15	.7 7.7
46	9.79 668	16	9.90 475	26	0.09 525	9.89 193	10	14	.8 8.8
47	9.79 684	16	9.90 501	26	0.09 499	9.89 183	10	13	.9 9.9
48	9.79 699	15	9.90 527	26	0.09 473	9.89 173	10	12	
49	9.79 715	16	9.90 553	26	0.09 447	9.89 162	11	11	
50	9.79 731	16	9.90 578	25	0.09 422	9.89 152	10	10	10 9
51	9.79 746	15	9.90 604	26	0.09 396	9.89 142	10	9	1 1.0 0.9
52	9.79 762	16	9.90 630	26	0.09 370	9.89 132	10	8	2 2.0 1.8
53	9.79 778	16	9.90 656	26	0.09 344	9.89 122	10	7	3 3.0 2.7
54	9.79 793	15	9.90 682	26	0.09 318	9.89 112	10	6	4 4.0 3.6
55	9.79 809	16	9.90 708	26	0.09 292	9.89 101	11	5	5 5.0 4.5
56	9.79 825	16	9.90 734	25	0.09 266	9.89 091	10	4	6 6.0 5.4
57	9.79 840	15	9.90 759	26	0.09 241	9.89 081	10	3	7 7.0 6.3
58	9.79 856	16	9.90 785	26	0.09 215	9.89 071	10	2	8 8.0 7.2
59	9.79 872	16	9.90 811	26	0.09 189	9.89 060	11	1	9 9.0 8.1
60	9.79 887	15	9 90 837		0.09 163	9.89 050	10	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

51°

39°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.79 887	16	9.90 837	26	0.09 163	9.89 050	10	60	
1	9.79 903	15	9.90 863	26	0.09 137	9.89 040	10	59	
2	9.79 918	16	9.90 889	25	0.09 111	9.89 030	10	58	
3	9.79 934	16	9.90 914	26	0.09 086	9.89 020	11	57	26
4	9.79 950	15	9.90 940	26	0.09 060	9.89 009	10	56	.1 2.6
5	9.79 965	16	9.90 966	26	0.09 034	9.88 999	10	55	.2 5.2
6	9.79 981	15	9.90 992	26	0.09 008	9.88 989	11	54	.3 7.8
7	9.79 996	16	9.91 018	25	0.08 982	9.88 978	10	53	.4 10.4
8	9.80 012	15	9.91 043	26	0.08 957	9.88 968	10	52	.5 13.0
9	9.80 027	16	9.91 069	26	0.08 931	9.88 958	10	51	.6 15.6
10	9.80 043	15	9.91 095	26	0.08 905	9.88 948	11	50	.7 18.2
11	9.80 058	16	9.91 121	26	0.08 879	9.88 937	10	49	.8 20.8
12	9.80 074	15	9.91 147	25	0.08 853	9.88 927	10	48	.9 23.4
13	9.80 089	16	9.91 172	26	0.08 828	9.88 917	11	47	
14	9.80 105	15	9.91 198	26	0.08 802	9.88 906	10	46	25
15	9.80 120	16	9.91 224	26	0.08 776	9.88 896	10	45	.1 2.5
16	9.80 136	15	9.91 250	26	0.08 750	9.88 886	11	44	.2 5.0
17	9.80 151	15	9.91 276	25	0.08 724	9.88 875	10	43	.3 7.5
18	9.80 166	16	9.91 301	26	0.08 699	9.88 865	10	42	.4 10.0
19	9.80 182	15	9.91 327	26	0.08 673	9.88 855	11	41	.5 12.5
20	9.80 197	16	9.91 353	26	0.08 647	9.88 844	10	40	.6 15.0
21	9.80 213	15	9.91 379	25	0.08 621	9.88 834	10	39	.7 17.5
22	9.80 228	16	9.91 404	26	0.08 596	9.88 824	11	38	.8 20.0
23	9.80 244	15	9.91 430	26	0.08 570	9.88 813	10	37	.9 22.5
24	9.80 259	15	9.91 456	26	0.08 544	9.88 803	10	36	
25	9.80 274	16	9.91 482	25	0.08 518	9.88 793	11	35	16
26	9.80 290	15	9.91 507	26	0.08 493	9.88 782	10	34	.1 1.6
27	9.80 305	15	9.91 533	26	0.08 467	9.88 772	11	33	.2 3.2
28	9.80 320	16	9.91 559	26	0.08 441	9.88 761	10	32	.3 4.8
29	9.80 336	15	9.91 585	25	0.08 415	9.88 751	10	31	.4 6.4
30	9.80 351	15	9.91 610	26	0.08 390	9.88 741	11	30	.5 8.0
31	9.80 366	16	9.91 636	26	0.08 364	9.88 730	10	29	.6 9.6
32	9.80 382	15	9.91 662	26	0.08 338	9.88 720	11	28	.7 11.2
33	9.80 397	15	9.91 688	25	0.08 312	9.88 709	10	27	.8 12.8
34	9.80 412	16	9.91 713	26	0.08 287	9.88 699	11	26	.9 14.4
35	9.80 428	15	9.91 739	26	0.08 261	9.88 688	10	25	
36	9.80 443	15	9.91 765	26	0.08 235	9.88 678	10	24	
37	9.80 458	15	9.91 791	26	0.08 209	9.88 668	10	23	
38	9.80 473	16	9.91 816	25	0.08 184	9.88 657	11	22	15
39	9.80 489	15	9.91 842	26	0.08 158	9.88 647	10	21	.1 1.5
40	9.80 504	15	9.91 868	26	0.08 132	9.88 636	11	20	.2 3.0
41	9.80 519	15	9.91 893	25	0.08 107	9.88 626	10	19	.3 4.5
42	9.80 534	15	9.91 919	26	0.08 081	9.88 615	11	18	.4 6.0
43	9.80 550	16	9.91 945	26	0.08 055	9.88 605	10	17	.5 7.5
44	9.80 565	15	9.91 971	26	0.08 029	9.88 594	11	16	.6 9.0
45	9.80 580	15	9.91 996	25	0.08 004	9.88 584	10	15	.7 10.5
46	9.80 595	15	9.92 022	26	0.07 978	9.88 573	11	14	.8 12.0
47	9.80 610	15	9.92 048	26	0.07 952	9.88 563	10	13	.9 13.5
48	9.80 625	15	9.92 073	25	0.07 927	9.88 552	11	12	
49	9.80 641	16	9.92 099	26	0.07 901	9.88 542	10	11	
50	9.80 656	15	9.92 125	26	0.07 875	9.88 531	11	10	11 10
51	9.80 671	15	9.92 150	25	0.07 850	9.88 521	10	9	.1 1.1 1.0
52	9.80 686	15	9.92 176	26	0.07 824	9.88 510	11	8	.2 2.2 2.0
53	9.80 701	15	9.92 202	26	0.07 798	9.88 499	11	7	.3 3.3 3.0
54	9.80 716	15	9.92 227	25	0.07 773	9.88 489	10	6	.4 4.4 4.0
55	9.80 731	15	9.92 253	26	0.07 747	9.88 478	11	5	.5 5.5 5.0
56	9.80 746	15	9.92 279	26	0.07 721	9.88 468	10	4	.6 6.6 6.0
57	9.80 762	16	9.92 304	25	0.07 696	9.88 457	11	3	.7 7.7 7.0
58	9.80 777	15	9.92 330	26	0.07 670	9.88 447	10	2	.8 8.8 8.0
59	9.80 792	15	9.92 356	26	0.07 644	9.88 436	11	1	.9 9.9 9.0
60	9.80 807		9.92 381	25	0.07 619	9.88 425	11	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

50°

40°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.80 807	15	9.92 381	26	0.07 619	9.88 425	10	60	
1	9.80 822	15	9.92 407	26	0.07 593	9.88 415	11	59	
2	9.80 837	15	9.92 433	25	0.07 567	9.88 404	10	58	
3	9.80 852	15	9.92 458	26	0.07 542	9.88 394	11	57	26
4	9.80 867	15	9.92 484	26	0.07 516	9.88 383	11	56	.1 2.6
5	9.80 882	15	9.92 510	25	0.07 490	9.88 372	10	55	.2 5.2
6	9.80 897	15	9.92 535	26	0.07 465	9.88 362	11	54	.3 7.8
7	9.80 912	15	9.92 561	26	0.07 439	9.88 351	11	53	.4 10.4
8	9.80 927	15	9.92 587	25	0.07 413	9.88 340	10	52	.5 13.0
9	9.80 942	15	9.92 612	26	0.07 388	9.88 330	11	51	.6 15.6
10	9.80 957	15	9.92 638	25	0.07 362	9.88 319	11	50	.7 18.2
11	9.80 972	15	9.92 663	26	0.07 337	9.88 308	10	49	.8 20.8
12	9.80 987	15	9.92 689	26	0.07 311	9.88 298	11	48	.9 23.4
13	9.81 002	15	9.92 715	25	0.07 285	9.88 287	11	47	
14	9.81 017	15	9.92 740	26	0.07 260	9.88 276	10	46	
15	9.81 032	15	9.92 766	26	0.07 234	9.88 266	11	45	25
16	9.81 047	14	9.92 792	25	0.07 208	9.88 255	11	44	.1 2.5
17	9.81 061	15	9.92 817	26	0.07 183	9.88 244	10	43	.2 5.0
18	9.81 076	15	9.92 843	25	0.07 157	9.88 234	11	42	.3 7.5
19	9.81 091	15	9.92 868	26	0.07 132	9.88 223	11	41	.4 10.0
20	9.81 106	15	9.92 894	26	0.07 106	9.88 212	11	40	.5 12.5
21	9.81 121	15	9.92 920	25	0.07 080	9.88 201	10	39	.6 15.0
22	9.81 136	15	9.92 945	26	0.07 055	9.88 191	11	38	.7 17.5
23	9.81 151	15	9.92 971	25	0.07 029	9.88 180	11	37	.8 20.0
24	9.81 166	15	9.92 996	26	0.07 004	9.88 169	11	36	.9 22.5
25	9.81 180	14	9.93 022	26	0.06 978	9.88 158	11	35	
26	9.81 195	15	9.93 048	25	0.06 952	9.88 148	10	34	15
27	9.81 210	15	9.93 073	26	0.06 927	9.88 137	11	33	.1 1.5
28	9.81 225	15	9.93 099	25	0.06 901	9.88 126	11	32	.2 3.0
29	9.81 240	14	9.93 124	26	0.06 876	9.88 115	11	31	.3 4.5
30	9.81 254	15	9.93 150	25	0.06 850	9.88 105	10	30	.4 6.0
31	9.81 269	15	9.93 175	26	0.06 825	9.88 094	11	29	.5 7.5
32	9.81 284	15	9.93 201	26	0.06 799	9.88 083	11	28	.6 9.0
33	9.81 299	15	9.93 227	25	0.06 773	9.88 072	11	27	.7 10.5
34	9.81 314	14	9.93 252	26	0.06 748	9.88 061	11	26	.8 12.0
35	9.81 328	15	9.93 278	25	0.06 722	9.88 051	10	25	.9 13.5
36	9.81 343	15	9.93 303	26	0.06 697	9.88 040	11	24	
37	9.81 358	14	9.93 329	25	0.06 671	9.88 029	11	23	
38	9.81 372	15	9.93 354	26	0.06 646	9.88 018	11	22	14
39	9.81 387	15	9.93 380	26	0.06 620	9.88 007	11	21	.1 1.4
40	9.81 402	15	9.93 406	25	0.06 594	9.87 996	11	20	.2 2.8
41	9.81 417	14	9.93 431	26	0.06 569	9.87 985	11	19	.3 4.2
42	9.81 431	15	9.93 457	25	0.06 543	9.87 975	10	18	.4 5.6
43	9.81 446	15	9.93 482	26	0.06 518	9.87 964	11	17	.5 7.0
44	9.81 461	14	9.93 508	25	0.06 492	9.87 953	11	16	.6 8.4
45	9.81 475	15	9.93 533	26	0.06 467	9.87 942	11	15	.7 9.8
46	9.81 490	15	9.93 559	25	0.06 441	9.87 931	11	14	.8 11.2
47	9.81 505	14	9.93 584	26	0.06 416	9.87 920	11	13	.9 12.6
48	9.81 519	15	9.93 610	26	0.06 390	9.87 909	11	12	
49	9.81 534	15	9.93 636	25	0.06 364	9.87 898	11	11	
50	9.81 549	14	9.93 661	26	0.06 339	9.87 887	11	10	11 10
51	9.81 563	15	9.93 687	25	0.06 313	9.87 877	10	9	.1 1.1 1.0
52	9.81 578	14	9.93 712	26	0.06 288	9.87 866	11	8	.2 2.2 2.0
53	9.81 592	15	9.93 738	25	0.06 262	9.87 855	11	7	.3 3.3 3.0
54	9.81 607	15	9.93 763	26	0.06 237	9.87 844	11	6	.4 4.4 4.0
55	9 81 622	14	9.93 789	25	0.06 211	9.87 833	11	5	.5 5.5 5.0
56	9 81 636	15	9.93 814	26	0.06 186	9 87 822	11	4	.6 6.6 6.0
57	9 81 651	14	9.93 840	25	0.06 160	9.87 811	11	3	.7 7.7 7.0
58	9 81 665	15	9.93 865	26	0.06 135	9.87 800	11	2	.8 8.8 8.0
59	9.81 680	14	9.93 891	25	0.06 109	9.87 789	11	1	.9 9.9 9.0
60	9.81 694		9.93 916		0.06 084	9.87 778	11	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

49°

41°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.81 694	15	9.93 916	26	0.06 084	9.87 778	11	60	
1	9.81 709	14	9.93 942	25	0.06 058	9.87 767	11	59	
2	9.81 723	15	9.93 967	26	0.06 033	9.87 756	11	58	
3	9.81 738	14	9.93 993	25	0.06 007	9.87 745	11	57	26
4	9.81 752	15	9.94 018	26	0.05 982	9.87 734	11	56	.1 2.6
5	9.81 767	14	9.94 044	25	0.05 956	9.87 723	11	55	.2 5.2
6	9.81 781	15	9.94 069	26	0.05 931	9.87 712	11	54	.3 7.8
7	9.81 796	14	9.94 095	25	0.05 905	9.87 701	11	53	.4 10.4
8	9.81 810	15	9.94 120	26	0.05 880	9.87 690	11	52	.5 13.0
9	9.81 825	14	9.94 146	25	0.05 854	9.87 679	11	51	.6 15.6
10	9.81 839	15	9.94 171	26	0.05 829	9.87 668	11	50	.7 18.2
11	9.81 854	14	9.94 197	25	0.05 803	9.87 657	11	49	.8 20.8
12	9.81 868	14	9.94 222	26	0.05 778	9.87 646	11	48	.9 23.4
13	9.81 882	15	9.94 248	25	0.05 752	9.87 635	11	47	
14	9.81 897	14	9.94 273	26	0.05 727	9.87 624	11	46	25
15	9.81 911	15	9.94 299	25	0.05 701	9.87 613	12	45	.1 2.5
16	9.81 926	14	9.94 324	26	0.05 676	9.87 601	11	44	.2 5.0
17	9.81 940	15	9.94 350	25	0.05 650	9.87 590	11	43	.3 7.5
18	9.81 955	14	9.94 375	26	0.05 625	9.87 579	11	42	.4 10.0
19	9.81 969	14	9.94 401	25	0.05 599	9.87 568	11	41	.5 12.5
20	9.81 983	15	9.94 426	26	0.05 574	9.87 557	11	40	.6 15.0
21	9.81 998	14	9.94 452	25	0.05 548	9.87 546	11	39	.7 17.5
22	9.82 012	14	9.94 477	26	0.05 523	9.87 535	11	38	.8 20.0
23	9.82 026	15	9.94 503	25	0.05 497	9.87 524	11	37	.9 22.5
24	9.82 041	14	9.94 528	26	0.05 472	9.87 513	12	36	
25	9.82 055	14	9.94 554	25	0.05 446	9.87 501	11	35	15
26	9.82 069	15	9.94 579	25	0.05 421	9.87 490	11	34	1 1.5
27	9.82 084	14	9.94 604	26	0.05 396	9.87 479	11	33	.2 3.0
28	9.82 098	14	9.94 630	25	0.05 370	9.87 468	11	32	.3 4.5
29	9.82 112	14	9.94 655	26	0.05 345	9.87 457	11	31	.4 6.0
30	9.82 126	15	9.94 681	25	0.05 319	9.87 446	12	30	.5 7.5
31	9.82 141	14	9.94 706	26	0.05 294	9.87 434	11	29	.6 9.0
32	9.82 155	14	9.94 732	25	0.05 268	9.87 423	11	28	.7 10.5
33	9.82 169	15	9.94 757	26	0.05 243	9.87 412	11	27	.8 12.0
34	9.82 184	14	9.94 783	25	0.05 217	9.87 401	11	26	.9 13.5
35	9.82 198	14	9.94 808	26	0.05 192	9.87 390	12	25	
36	9.82 212	14	9.94 834	25	0.05 166	9.87 378	11	24	
37	9.82 226	14	9.94 859	25	0.05 141	9.87 367	11	23	14
38	9.82 240	15	9.94 884	26	0.05 116	9.87 356	11	22	.1 1.4
39	9.82 255	14	9.94 910	25	0.05 090	9.87 345	11	21	.2 2.8
40	9.82 269	14	9.94 935	26	0.05 065	9.87 334	12	20	.3 4.2
41	9.82 283	14	9.94 961	25	0.05 039	9.87 322	11	19	.4 5.6
42	9.82 297	14	9.94 986	26	0.05 014	9.87 311	11	18	.5 7.0
43	9.82 311	14	9.95 012	25	0.04 988	9.87 300	12	17	.6 8.4
44	9.82 326	15	9.95 037	25	0.04 963	9.87 288	11	16	.7 9.8
45	9.82 340	14	9.95 062	26	0.04 938	9.87 277	11	15	.8 11.2
46	9.82 354	14	9.95 088	25	0.04 912	9.87 266	11	14	.9 12.6
47	9.82 368	14	9.95 113	26	0.04 887	9.87 255	12	13	
48	9.82 382	14	9.95 139	25	0.04 861	9.87 243	11	12	
49	9.82 396	14	9.95 164	26	0.04 836	9.87 232	11	11	12 11
50	9.82 410	14	9.95 190	25	0.04 810	9.87 221	12	10	.1 1.2 1.1
51	9.82 424	15	9.95 215	25	0.04 785	9.87 209	11	9	.2 2.4 2.2
52	9.82 439	14	9.95 240	26	0.04 760	9.87 198	11	8	.3 3.6 3.3
53	9.82 453	14	9.95 266	25	0.04 734	9.87 187	12	7	.4 4.8 4.4
54	9.82 467	14	9.95 291	26	0.04 709	9.87 175	11	6	.5 6.0 5.5
55	9.82 481	14	9.95 317	25	0.04 683	9.87 164	11	5	.6 7.2 6.6
56	9.82 495	14	9.95 342	26	0.04 658	9.87 153	12	4	.7 8.4 7.7
57	9.82 509	14	9.95 368	25	0.04 632	9.87 141	11	3	.8 9.6 8.8
58	9.82 523	14	9.95 393	25	0.04 607	9.87 130	11	2	.9 10.8 9.9
59	9.82 537	14	9.95 418	26	0.04 582	9.87 119	11	1	
60	9.82 551		9.95 444		0.04 556	9.87 107	12	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

48°

42°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.82 551	14	9.95 444	25	0.04 556	9.87 107	11	60	
1	9.82 565	14	9.95 469	26	0.04 531	9.87 096	11	59	
2	9.82 579	14	9.95 495	25	0.04 505	9.87 085	12	58	26
3	9.82 593	14	9 95 520	25	0.04 480	9.87 073	11	57	.1 2.6
4	9.82 607	14	9.95 545	26	0.04 455	9 87 062	12	56	.2 5.2
5	9.82 621	14	9.95 571	25	0.04 429	9.87 050	11	55	.3 7.8
6	9.82 635	14	9.95 596	26	0.04 404	9.87 039	11	54	.4 10.4
7	9.82 649	14	9.95 622	25	0.04 378	9.87 028	11	53	.5 13.0
8	9.82 663	14	9.95 647	25	0.04 353	9.87 016	12	52	.6 15.6
9	9.82 677	14	9.95 672	26	0.04 328	9.87 005	11	51	.7 18.2
10	9.82 691	14	9.95 698	25	0.04 302	9.86 993	12	50	.8 20.8
11	9.82 705	14	9.95 723	25	0.04 277	9.86 982	11	49	.9 23.4
12	9.82 719	14	9.95 748	26	0.04 252	9.86 970	12	48	
13	9.82 733	14	9.95 774	25	0.04 226	9.86 959	11	47	
14	9.82 747	14	9.95 799	26	0.04 201	9.86 947	12	46	25
15	9.82 761	14	9.95 825	25	0.04 175	9.86 936	11	45	.1 2.5
16	9.82 775	13	9.95 850	25	0.04 150	9.86 924	12	44	.2 5.0
17	9.82 788	14	9.95 875	26	0.04 125	9.86 913	11	43	.3 7.5
18	9.82 802	14	9.95 901	25	0.04 099	9.86 902	11	42	.4 10.0
19	9.82 816	14	9.95 926	26	0.04 074	9.86 890	12	41	.5 12.5
20	9.82 830	14	9.95 952	25	0.04 048	9.86 879	11	40	.6 15.0
21	9.82 844	14	9.95 977	25	0.04 023	9.86 867	12	39	.7 17.5
22	9.82 858	14	9.96 002	26	0.03 998	9.86 855	12	38	.8 20.0
23	9.82 872	13	9.96 028	25	0.03 972	9.86 844	11	37	.9 22.5
24	9.82 885	14	9.96 053	25	0.03 947	9.86 832	12	36	
25	9.82 899	14	9.96 078	26	0.03 922	9.86 821	11	35	
26	9.82 913	14	9.96 104	25	0.03 896	9.86 809	12	34	14
27	9.82 927	14	9.96 129	26	0.03 871	9.86 798	11	33	.1 1.4
28	9.82 941	14	9.96 155	25	0.03 845	9 86 786	12	32	.2 2.8
29	9.82 955	13	9.96 180	25	0.03 820	9.86 775	11	31	.3 4.2
30	9.82 968	14	9.96 205	26	0.03 795	9.86 763	12	30	.4 5.6
31	9.82 982	14	9.96 231	25	0.03 769	9.86 752	11	29	.5 7.0
32	9.82 996	14	9.96 256	25	0.03 744	9.86 740	12	28	.6 8.4
33	9.83 010	13	9.96 281	26	0.03 719	9.86 728	12	27	.7 9.8
34	9.83 023	14	9.96 307	25	0.03 693	9.86 717	11	26	.8 11.2
35	9.83 037	14	9.96 332	25	0.03 668	9.86 705	12	25	.9 12.6
36	9.83 051	14	9.96 357	26	0.03 643	9.86 694	11	24	
37	9.83 065	13	9.96 383	25	0.03 617	9.86 682	12	23	
38	9.83 078	14	9.96 408	25	0.03 592	9.86 670	12	22	13
39	9.83 092	14	9.96 433	26	0.03 567	9.86 659	11	21	.1 1.3
40	9.83 106	14	9.96 459	25	0.03 541	9.86 647	12	20	.2 2.6
41	9.83 120	13	9.96 484	26	0.03 516	9.86 635	12	19	.3 3.9
42	9.83 133	14	9.96 510	25	0.03 490	9.86 624	11	18	.4 5.2
43	9.83 147	14	9.96 535	25	0.03 465	9.86 612	12	17	.5 6.5
44	9.83 161	13	9.96 560	26	0.03 440	9.86 600	12	16	.6 7.8
45	9.83 174	14	9.96 586	25	0.03 414	9.86 589	11	15	.7 9.1
46	9.83 188	14	9.96 611	25	0.03 389	9.86 577	12	14	.8 10.4
47	9.83 202	13	9.96 636	26	0.03 364	9.86 565	12	13	.9 11.7
48	9.83 215	14	9.96 662	25	0.03 338	9.86 554	11	12	
49	9 83 229	13	9.96 687	25	0.03 313	9.86 542	12	11	
50	9.83 242	14	9.96 712	26	0.03 288	9.86 530	12	10	12 11
51	9.83 256	14	9.96 738	25	0.03 262	9.86 518	12	9	.1 1.2 1.1
52	9.83 270	13	9.96 763	25	0.03 237	9.86 507	11	8	.2 2.4 2.2
53	9.83 283	14	9.96 788	26	0.03 212	9.86 495	12	7	.3 3.6 3.3
54	9.83 297	13	9.96 814	25	0.03 186	9.86 483	12	6	.4 4.8 4.4
55	9.83 310	14	9.96 839	25	0.03 161	9.86 472	11	5	.5 6.0 5.5
56	9.83 324	14	9.96 864	26	0.03 136	9.86 460	12	4	.6 7 2 6.6
57	9.83 338	14	9.96 890	25	0.03 110	9.86 448	12	3	.7 8.4 7.7
58	9.83 351	13	9.96 915	25	0.03 085	9.86 436	12	2	.8 9.6 8.8
59	9.83 365	14	9.96 940	25	0.03 060	9.86 425	11	1	.9 10.8 9.9
60	9.83 378	13	9.96 966	26	0.03 034	9.86 413	12	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

47°

43°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9.83 378	14	9 96 966	25	0.03 034	9.86 413	12	60	
1	9.83 392	13	9.96 991	25	0.03 009	9.86 401	12	59	
2	9 83 405	14	9.97 016	26	0.02 984	9.86 389	12	58	
3	9.83 419	13	9.97 042	25	0.02 958	9.86 377	11	57	26
4	9.83 432	14	9.97 067	25	0.02 933	9 86 366	12	56	.1 2.6
5	9.83 446	13	9.97 092	26	0.02 908	9.86 354	12	55	.2 5.2
6	9 83 459	14	9.97 118	25	0.02 882	9.86 342	12	54	.3 7.8
7	9.83 473	13	9.97 143	25	0.02 857	9.86 330	12	53	.4 10.4
8	9.83 486	14	9.97 168	25	0.02 832	9.86 318	12	52	.5 13.0
9	9.83 500	13	9.97 193	26	0.02 807	9.86 306	11	51	.6 15.6
10	9.83 513	14	9.97 219	25	0.02 781	9.86 295	12	50	.7 18.2
11	9.83 527	13	9.97 244	25	0.02 756	9.86 283	12	49	.8 20.8
12	9.83 540	14	9.97 269	26	0.02 731	9.86 271	12	48	.9 23.4
13	9.83 554	13	9.97 295	25	0.02 705	9.86 259	12	47	
14	9.83 567	14	9.97 320	25	0 02 680	9.86 247	12	46	
15	9.83 581	13	9.97 345	26	0.02 655	9.86 235	12	45	25
16	9.83 594	14	9.97 371	25	0.02 629	9.86 223	12	44	.1 2.5
17	9.83 608	13	9.97 396	25	0.02 604	9.86 211	11	43	.2 5.0
18	9.83 621	13	9.97 421	26	0.02 579	9.86 200	12	42	.3 7.5
19	9.83 634	14	9.97 447	25	0.02 553	9 86 188	12	41	.4 10.0
20	9.83 648	13	9.97 472	25	0.02 528	9.86 176	12	40	.5 12.5
21	9.83 661	13	9.97 497	26	0.02 503	9.86 164	12	39	.6 15.0
22	9.83 674	14	9.97 523	25	0.02 477	9.86 152	12	38	.7 17.5
23	9.83 688	13	9.97 548	25	0.02 452	9.86 140	12	37	.8 20.0
24	9.83 701	14	9.97 573	25	0.02 427	9.86 128	12	36	.9 22.5
25	9.83 715	13	9.97 598	26	0.02 402	9.86 116	12	35	
26	9.83 728	13	9.97 624	25	0.02 376	9.86 104	12	34	14
27	9.83 741	14	9.97 649	25	0.02 351	9.86 092	12	33	.1 1.4
28	9.83 755	13	9.97 674	26	0.02 326	9.86 080	12	32	.2 2.8
29	9.83 768	13	9.97 700	25	0.02 300	9.86 068	12	31	.3 4.2
30	9.83 781	14	9.97 725	25	0.02 275	9.86 056	12	30	.4 5.6
31	9.83 795	13	9.97 750	26	0.02 250	9.86 044	12	29	.5 7.0
32	9.83 808	13	9.97 776	25	0.02 224	9.86 032	12	28	.6 8.4
33	9.83 821	13	9.97 801	25	0.02 199	9.86 020	12	27	.7 9.8
34	9.83 834	14	9.97 826	25	0.02 174	9.86 008	12	26	.8 11.2
35	9.83 848	13	9.97 851	26	0.02 149	9.85 996	12	25	.9 12.6
36	9.83 861	13	9.97 877	25	0.02 123	9.85 984	12	24	
37	9.83 874	13	9.97 902	25	0.02 098	9.85 972	12	23	
38	9.83 887	14	9.97 927	26	0.02 073	9.85 960	12	22	13
39	9.83 901	13	9.97 953	25	0.02 047	9.85 948	12	21	.1 1.3
40	9.83 914	13	9.97 978	25	0.02 022	9.85 936	12	20	.2 2.6
41	9.83 927	13	9.98 003	26	0.01 997	9.85 924	12	19	.3 3.9
42	9.83 940	14	9.98 029	25	0.01 971	9.85 912	12	18	.4 5.2
43	9.83 954	13	9.98 054	25	0.01 946	9.85 900	12	17	.5 6.5
44	9.83 967	13	9.98 079	25	0.01 921	9.85 888	12	16	.6 7.8
45	9.83 980	13	9.98 104	26	0.01 896	9.85 876	12	15	.7 9.1
46	9.83 993	13	9.98 130	25	0.01 870	9.85 864	12	14	.8 10.4
47	9.84 006	14	9.98 155	25	0.01 845	9.85 851	13	13	.9 11.7
48	9.84 020	13	9.98 180	26	0.01 820	9.85 839	12	12	
49	9.84 033	13	9 98 206	25	0.01 794	9.85 827	12	11	12 11
50	9.84 046	13	9.98 231	25	0.01 769	9.85 815	12	10	.1 1.2 1.1
51	9.84 059	13	9.98 256	25	0.01 744	9.85 803	12	9	.2 2.4 2.2
52	9.84 072	13	9.98 281	26	0.01 719	9.85 791	12	8	.3 3.6 3.3
53	9.84 085	13	9.98 307	25	0.01 693	9.85 779	12	7	.4 4.8 4.4
54	9.84 098	13	9.98 332	25	0.01 668	9.85 766	13	6	.5 6.0 5.5
55	9.84 112	14	9.98 357	25	0.01 643	9.85 754	12	5	.6 7.2 6.6
56	9.84 125	13	9.98 383	26	0.01 617	9.85 742	12	4	.7 8.4 7.7
57	9.84 138	13	9.98 408	25	0.01 592	9.85 730	12	3	.8 9.6 8.8
58	9.84 151	13	9.98 433	25	0.01 567	9.85 718	12	2	.9 10.8 9.9
59	9.84 164	13	9.98 458	25	0.01 542	9.85 706	12	1	
60	9.84 177		9.98 484	26	0.01 516	9.85 693	13	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

46°

44°

′	L. Sin.	d.	L. Tang.	c. d.	L. Cotg.	L. Cos.	d.		Prop. Pts.
0	9 84 177	13	9.98 484	25	0.01 516	9.85 693	12	60	
1	9.84 190	13	9.98 509	25	0.01 491	9.85 681	12	59	
2	9.84 203	13	9.98 534	26	0.01 466	9.85 669	12	58	
3	9.84 216	13	9.98 560	25	0.01 440	9 85 657	12	57	26
4	9.84 229	13	9.98 585	25	0.01 415	9.85 645	13	56	.1 2.6
5	9.84 242	13	9 98 610	25	0.01 390	9.85 632	12	55	.2 5.2
6	9.84 255	14	9.98 635	26	0.01 365	9.85 620	12	54	.3 7.8
7	9.84 269	13	9.98 661	25	0.01 339	9.85 608	12	53	.4 10.4
8	9.84 282	13	9.98 686	25	0.01 314	9.85 596	13	52	.5 13.0
9	9.84 295	13	9.98 711	26	0.01 289	9.85 583	12	51	.6 15.6
10	9.84 308	13	9.98 737	25	0.01 263	9.85 571	12	50	.7 18.2
11	9 84 321	13	9.98 762	25	0.01 238	9.85 559	12	49	.8 20.8
12	9 84 334	13	9.98 787	25	0.01 213	9.85 547	13	48	.9 23.4
13	9.84 347	13	9.98 812	26	0.01 188	9.85 534	12	47	
14	9.84 360	13	9.98 838	25	0.01 162	9.85 522	12	46	25
15	9 84 373	12	9.98 863	25	0.01 137	9.85 510	13	45	.1 2.5
16	9.84 385	13	9.98 888	25	0.01 112	9.85 497	12	44	.2 5.0
17	9.84 398	13	9.98 913	26	0.01 087	9.85 485	12	43	.3 7.5
18	9.84 411	13	9.98 939	25	0.01 061	9.85 473	13	42	.4 10.0
19	9.84 424	13	9.98 964	25	0.01 036	9.85 460	12	41	.5 12.5
20	9.84 437	13	9.98 989	26	0.01 011	9.85 448	12	40	.6 15.0
21	9 84 450	13	9.99 015	25	0.00 985	9.85 436	13	39	.7 17.5
22	9.84 463	13	9.99 040	25	0.00 960	9.85 423	12	38	.8 20.0
23	9.84 476	13	9.99 065	25	0.00 935	9.85 411	12	37	.9 22.5
24	9.84 489	13	9.99 090	25	0.00 910	9 85 399	13	36	
25	9.84 502	13	9.99 116	25	0.00 884	9.85 386	12	35	14
26	9.84 515	13	9.99 141	25	0.00 859	9.85 374	13	34	.1 1.4
27	9.84 528	12	9.99 166	25	0.00 834	9.85 361	12	33	.2 2.8
28	9.84 540	13	9.99 191	26	0.00 809	9.85 349	12	32	.3 4.2
29	9.84 553	13	9.99 217	25	0.00 783	9.85 337	13	31	.4 5.6
30	9.84 566	13	9.99 242	25	0.00 758	9.85 324	12	30	.5 7.0
31	9.84 579	13	9.99 267	26	0.00 733	9.85 312	13	29	.6 8.4
32	9.84 592	13	9.99 293	25	0.00 707	9.85 299	12	28	.7 9.8
33	9.84 605	13	9.99 318	25	0.00 682	9.85 287	13	27	.8 11.2
34	9.84 618	12	9.99 343	25	0.00 657	9.85 274	12	26	.9 12.6
35	9.84 630	13	9.99 368	26	0.00 632	9.85 262	12	25	
36	9.84 643	13	9.99 394	25	0.00 606	9.85 250	13	24	
37	9 84 656	13	9.99 419	25	0.00 581	9.85 237	12	23	13
38	9.84 669	13	9.99 444	25	0.00 556	9.85 225	13	22	.1 1.3
39	9.84 682	12	9.99 469	26	0.00 531	9.85 212	12	21	.2 2.6
40	9.84 694	13	9.99 495	25	0.00 505	9.85 200	13	20	.3 3.9
41	9.84 707	13	9.99 520	25	0.00 480	9.85 187	12	19	.4 5.2
42	9.84 720	13	9.99 545	25	0.00 455	9.85 175	13	18	.5 6.5
43	9.84 733	12	9.99 570	26	0.00 430	9.85 162	12	17	.6 7.8
44	9.84 745	13	9.99 596	25	0.00 404	9.85 150	13	16	.7 9.1
45	9.84 758	13	9.99 621	25	0.00 379	9.85 137	12	15	.8 10.4
46	9.84 771	13	9.99 646	26	0.00 354	9.85 125	13	14	.9 11.7
47	9.84 784	12	9.99 672	25	0.00 328	9.85 112	12	13	
48	9.84 796	13	9.99 697	25	0.00 303	9.85 100	13	12	
49	9.84 809	13	9.99 722	25	0.00 278	9.85 087	13	11	12
50	9.84 822	13	9.99 747	26	0.00 253	9.85 074	12	10	.1 1.2
51	9.84 835	12	9.99 773	25	0.00 227	9.85 062	13	9	.2 2.4
52	9.84 847	13	9.99 798	25	0.00 202	9.85 049	12	8	.3 3.6
53	9.84 860	13	9.99 823	25	0.00 177	9.85 037	13	7	.4 4.8
54	9.84 873	12	9.99 848	25	0.00 152	9.85 024	12	6	.5 6.0
55	9.84 885	13	9.99 874	26	0.00 126	9.85 012	13	5	.6 7.2
56	9.84 898	13	9.99 899	25	0.00 101	9.84 999	13	4	.7 8.4
57	9.84 911	12	9.99 924	25	0.00 076	9.84 986	13	3	.8 9.6
58	9.84 923	13	9.99 949	25	0.00 051	9.84 974	12	2	.9 10.8
59	9.84 936	13	9.99 975	26	0.00 025	9.84 961	13	1	
60	9.84 949		0.00 000	25	0.00 000	9.84 949	12	0	
	L. Cos.	d.	L. Cotg.	c. d.	L. Tang.	L. Sin.	d.	′	Prop. Pts.

45°

TABLE III

—o—

NATURAL

TRIGONOMETRIC FUNCTIONS

FOR

EACH MINUTE

0°						1°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.0000	0.0000	∞	1.0000	60	0	0.0175	0.0175	57.2900	0.9998	60
1	0.0003	0.0003	3437.75	1.0000	59	1	0.0177	0.0177	56.3506	0.9998	59
2	0.0006	0.0006	1718.87	1.0000	58	2	0.0180	0.0180	55.4415	0.9998	58
3	0.0009	0.0009	1145.92	1.0000	57	3	0.0183	0.0183	54.5613	0.9998	57
4	0.0012	0.0012	859.436	1.0000	56	4	0.0186	0.0186	53.7086	0.9998	56
5	0.0015	0.0015	687.549	1.0000	55	5	0.0189	0.0189	52.8821	0.9998	55
6	0.0017	0.0017	572.957	1.0000	54	6	0.0192	0.0192	52.0807	0.9998	54
7	0.0020	0.0020	491.106	1.0000	53	7	0.0195	0.0195	51.3032	0.9998	53
8	0.0023	0.0023	429.718	1.0000	52	8	0.0198	0.0198	50.5485	0.9998	52
9	0.0026	0.0026	381.971	1.0000	51	9	0.0201	0.0201	49.8157	0.9998	51
10	0.0029	0.0029	343.774	1.0000	50	10	0.0204	0.0204	49.1039	0.9998	50
11	0.0032	0.0032	312.521	1.0000	49	11	0.0207	0.0207	48.4121	0.9998	49
12	0.0035	0.0035	286.478	1.0000	48	12	0.0209	0.0209	47.7395	0.9998	48
13	0.0038	0.0038	264.441	1.0000	47	13	0.0212	0.0212	47.0853	0.9998	47
14	0.0041	0.0041	245.552	1.0000	46	14	0.0215	0.0215	46.4489	0.9998	46
15	0.0044	0.0044	229.182	1.0000	45	15	0.0218	0.0218	45.8294	0.9998	45
16	0.0047	0.0047	214.858	1.0000	44	16	0.0221	0.0221	45.2261	0.9998	44
17	0.0049	0.0049	202.219	1.0000	43	17	0.0224	0.0224	44.6386	0.9997	43
18	0.0052	0.0052	190.984	1.0000	42	18	0.0227	0.0227	44.0661	0.9997	42
19	0.0055	0.0055	180.932	1.0000	41	19	0.0230	0.0230	43.5081	0.9997	41
20	0.0058	0.0058	171.885	1.0000	40	20	0.0233	0.0233	42.9641	0.9997	40
21	0.0061	0.0061	163.700	1.0000	39	21	0.0236	0.0236	42.4335	0.9997	39
22	0.0064	0.0064	156.259	1.0000	38	22	0.0239	0.0239	41.9158	0.9997	38
23	0.0067	0.0067	149.465	1.0000	37	23	0.0241	0.0241	41.4106	0.9997	37
24	0.0070	0.0070	143.237	1.0000	36	24	0.0244	0.0244	40.9174	0.9997	36
25	0.0073	0.0073	137.507	1.0000	35	25	0.0247	0.0247	40.4358	0.9997	35
26	0.0076	0.0076	132.219	1.0000	34	26	0.0250	0.0250	39.9655	0.9997	34
27	0.0079	0.0079	127.321	1.0000	33	27	0.0253	0.0253	39.5059	0.9997	33
28	0.0081	0.0081	122.774	1.0000	32	28	0.0256	0.0256	39.0568	0.9997	32
29	0.0084	0.0084	118.540	1.0000	31	29	0.0259	0.0259	38.6177	0.9997	31
30	0.0087	0.0087	114.589	1.0000	30	30	0.0262	0.0262	38.1885	0.9997	30
31	0.0090	0.0090	110.892	1.0000	29	31	0.0265	0.0265	37.7686	0.9996	29
32	0.0093	0.0093	107.426	1.0000	28	32	0.0268	0.0268	37.3579	0.9996	28
33	0.0096	0.0096	104.171	1.0000	27	33	0.0270	0.0271	36.9560	0.9996	27
34	0.0099	0.0099	101.107	1.0000	26	34	0.0273	0.0274	36.5627	0.9996	26
35	0.0102	0.0102	98.2179	0.9999	25	35	0.0276	0.0276	36.1776	0.9996	25
36	0.0105	0.0105	95.4895	0.9999	24	36	0.0279	0.0279	35.8006	0.9996	24
37	0.0108	0.0108	92.9085	0.9999	23	37	0.0282	0.0282	35.4313	0.9996	23
38	0.0111	0.0111	90.4633	0.9999	22	38	0.0285	0.0285	35.0695	0.9996	22
39	0.0113	0.0113	88.1436	0.9999	21	39	0.0288	0.0288	34.7151	0.9996	21
40	0.0116	0.0116	85.9398	0.9999	20	40	0.0291	0.0291	34.3678	0.9996	20
41	0.0119	0.0119	83.8435	0.9999	19	41	0.0294	0.0294	34.0273	0.9996	19
42	0.0122	0.0122	81.8470	0.9999	18	42	0.0297	0.0297	33.6935	0.9996	18
43	0.0125	0.0125	79.9434	0.9999	17	43	0.0300	0.0300	33.3662	0.9996	17
44	0.0128	0.0128	78.1263	0.9999	16	44	0.0302	0.0303	33.0452	0.9995	16
45	0.0131	0.0131	76.3900	0.9999	15	45	0.0305	0.0306	32.7303	0.9995	15
46	0.0134	0.0134	74.7292	0.9999	14	46	0.0308	0.0308	32.4213	0.9995	14
47	0.0137	0.0137	73.1390	0.9999	13	47	0.0311	0.0311	32.1181	0.9995	13
48	0.0140	0.0140	71.6151	0.9999	12	48	0.0314	0.0314	31.8205	0.9995	12
49	0.0143	0.0143	70.1533	0.9999	11	49	0.0317	0.0317	31.5284	0.9995	11
50	0.0145	0.0145	68.7501	0.9999	10	50	0.0320	0.0320	31.2416	0.9995	10
51	0.0148	0.0148	67.4019	0.9999	9	51	0.0323	0.0323	30.9599	0.9995	9
52	0.0151	0.0151	66.1055	0.9999	8	52	0.0326	0.0326	30.6833	0.9995	8
53	0.0154	0.0154	64.8580	0.9999	7	53	0.0329	0.0329	30.4116	0.9995	7
54	0.0157	0.0157	63.6567	0.9999	6	54	0.0332	0.0332	30.1446	0.9995	6
55	0.0160	0.0160	62.4992	0.9999	5	55	0.0334	0.0335	29.8823	0.9994	5
56	0.0163	0.0163	61.3829	0.9999	4	56	0.0337	0.0338	29.6245	0.9994	4
57	0.0166	0.0166	60.3058	0.9999	3	57	0.0340	0.0340	29.3711	0.9994	3
58	0.0169	0.0169	59.2659	0.9999	2	58	0.0343	0.0343	29.1220	0.9994	2
59	0.0172	0.0172	58.2612	0.9999	1	59	0.0346	0.0346	28.8771	0.9994	1
60	0.0175	0.0175	57.2900	0.9998	0	60	0.0349	0.0349	28.6363	0.9994	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
	89°						88°				

2°						3°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.0349	0.0349	28.6363	0.9994	60	0	0.0523	0.0524	19.0811	0.9986	60
1	0.0352	0.0352	28.3994	0.9994	59	1	0.0526	0.0527	18.9755	0.9986	59
2	0.0355	0.0355	28.1664	0.9994	58	2	0.0529	0.0530	18.8711	0.9986	58
3	0.0358	0.0358	27.9372	0.9994	57	3	0.0532	0.0533	18.7678	0.9986	57
4	0.0361	0.0361	27.7117	0.9993	56	4	0.0535	0.0536	18.6656	0.9986	56
5	0.0364	0.0364	27.4899	0.9993	55	5	0.0538	0.0539	18.5645	0.9986	55
6	0.0366	0.0367	27.2715	0.9993	54	6	0.0541	0.0542	18.4645	0.9985	54
7	0.0369	0.0370	27.0566	0.9993	53	7	0.0544	0.0544	18.3655	0.9985	53
8	0.0372	0.0373	26.8450	0.9993	52	8	0.0547	0.0547	18.2677	0.9985	52
9	0.0375	0.0375	26.6367	0.9993	51	9	0.0550	0.0550	18.1708	0.9985	51
10	0.0378	0.0378	26.4316	0.9993	50	10	0.0552	0.0553	18.0750	0.9985	50
11	0.0381	0.0381	26.2296	0.9993	49	11	0.0555	0.0556	17.9802	0.9985	49
12	0.0384	0.0384	26.0307	0.9993	48	12	0.0558	0.0559	17.8863	0.9984	48
13	0.0387	0.0387	25.8348	0.9993	47	13	0.0561	0.0562	17.7934	0.9984	47
14	0.0390	0.0390	25.6418	0.9992	46	14	0.0564	0.0565	17.7015	0.9984	46
15	0.0393	0.0393	25.4517	0.9992	45	15	0.0567	0.0568	17.6106	0.9984	45
16	0.0396	0.0396	25.2644	0.9992	44	16	0.0570	0.0571	17.5205	0.9984	44
17	0.0398	0.0399	25.0798	0.9992	43	17	0.0573	0.0574	17.4314	0.9984	43
18	0.0401	0.0402	24.8978	0.9992	42	18	0.0576	0.0577	17.3432	0.9983	42
19	0.0404	0.0405	24.7185	0.9992	41	19	0.0579	0.0580	17.2558	0.9983	41
20	0.0407	0.0407	24.5418	0.9992	40	20	0.0581	0.0582	17.1693	0.9983	40
21	0.0410	0.0410	24.3675	0.9992	39	21	0.0584	0.0585	17.0837	0.9983	39
22	0.0413	0.0413	24.1957	0.9991	38	22	0.0587	0.0588	16.9990	0.9983	38
23	0.0416	0.0416	24.0263	0.9991	37	23	0.0590	0.0591	16.9150	0.9983	37
24	0.0419	0.0419	23.8593	0.9991	36	24	0.0593	0.0594	16.8319	0.9982	36
25	0.0422	0.0422	23.6945	0.9991	35	25	0.0596	0.0597	16.7496	0.9982	35
26	0.0425	0.0425	23.5321	0.9991	34	26	0.0599	0.0600	16.6681	0.9982	34
27	0.0427	0.0428	23.3718	0.9991	33	27	0.0602	0.0603	16.5874	0.9982	33
28	0.0430	0.0431	23.2137	0.9991	32	28	0.0605	0.0606	16.5075	0.9982	32
29	0.0433	0.0434	23.0577	0.9991	31	29	0.0608	0.0609	16.4283	0.9982	31
30	0.0436	0.0437	22.9038	0.9990	30	30	0.0610	0.0612	16.3499	0.9981	30
31	0.0439	0.0440	22.7519	0.9990	29	31	0.0613	0.0615	16.2722	0.9981	29
32	0.0442	0.0442	22.6020	0.9990	28	32	0.0616	0.0617	16.1952	0.9981	28
33	0.0445	0.0445	22.4541	0.9990	27	33	0.0619	0.0620	16.1190	0.9981	27
34	0.0448	0.0448	22.3081	0.9990	26	34	0.0622	0.0623	16.0435	0.9981	26
35	0.0451	0.0451	22.1640	0.9990	25	35	0.0625	0.0626	15.9687	0.9980	25
36	0.0454	0.0454	22.0217	0.9990	24	36	0.0628	0.0629	15.8945	0.9980	24
37	0.0457	0.0457	21.8813	0.9990	23	37	0.0631	0.0632	15.8211	0.9980	23
38	0.0459	0.0460	21.7426	0.9989	22	38	0.0634	0.0635	15.7483	0.9980	22
39	0.0462	0.0463	21.6056	0.9989	21	39	0.0637	0.0638	15.6762	0.9980	21
40	0.0465	0.0466	21.4704	0.9989	20	40	0.0640	0.0641	15.6048	0.9980	20
41	0.0468	0.0469	21.3369	0.9989	19	41	0.0642	0.0644	15.5340	0.9979	19
42	0.0471	0.0472	21.2049	0.9989	18	42	0.0645	0.0647	15.4638	0.9979	18
43	0.0474	0.0475	21.0747	0.9989	17	43	0.0648	0.0650	15.3943	0.9979	17
44	0.0477	0.0477	20.9460	0.9989	16	44	0.0651	0.0653	15.3254	0.9979	16
45	0.0480	0.0480	20.8188	0.9988	15	45	0.0654	0.0655	15.2571	0.9979	15
46	0.0483	0.0483	20.6932	0.9988	14	46	0.0657	0.0658	15.1893	0.9978	14
47	0.0486	0.0486	20.5691	0.9988	13	47	0.0660	0.0661	15.1222	0.9978	13
48	0.0488	0.0489	20.4465	0.9988	12	48	0.0663	0.0664	15.0557	0.9978	12
49	0.0491	0.0492	20.3253	0.9988	11	49	0.0666	0.0667	14.9898	0.9978	11
50	0.0494	0.0495	20.2056	0.9988	10	50	0.0669	0.0670	14.9244	0.9978	10
51	0.0497	0.0498	20.0872	0.9988	9	51	0.0671	0.0673	14.8596	0.9977	9
52	0.0500	0.0501	19.9702	0.9987	8	52	0.0674	0.0676	14.7954	0.9977	8
53	0.0503	0.0504	19.8546	0.9987	7	53	0.0677	0.0679	14.7317	0.9977	7
54	0.0506	0.0507	19.7403	0.9987	6	54	0.0680	0.0682	14.6685	0.9977	6
55	0.0509	0.0509	19.6273	0.9987	5	55	0.0683	0.0685	14.6059	0.9977	5
56	0.0512	0.0512	19.5156	0.9987	4	56	0.0686	0.0688	14.5438	0.9976	4
57	0.0515	0.0515	19.4051	0.9987	3	57	0.0689	0.0690	14.4823	0.9976	3
58	0.0518	0.0518	19.2959	0.9987	2	58	0.0692	0.0693	14.4212	0.9976	2
59	0.0520	0.0521	19.1879	0.9986	1	59	0.0695	0.0696	14.3607	0.9976	1
60	0.0523	0.0524	19.0811	0.9986	0	60	0.0698	0.0699	14.3007	0.9976	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
87°						86°					

4°						5°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.0698	0.0699	14.3007	0.9976	60	0	0.0872	0.0875	11.4301	0.9962	60
1	0.0700	0.0702	14.2411	0.9975	59	1	0.0874	0.0878	11.3919	0.9962	59
2	0.0703	0.0705	14.1821	0.9975	58	2	0.0877	0.0881	11.3540	0.9961	58
3	0.0706	0.0708	14.1235	0.9975	57	3	0.0880	0.0884	11.3163	0.9961	57
4	0.0709	0.0711	14.0655	0.9973	56	4	0.0883	0.0887	11.2789	0.9961	56
5	0.0712	0.0714	14.0079	0.9973	55	5	0.0886	0.0890	11.2417	0.9961	55
6	0.0715	0.0717	13.9507	0.9974	54	6	0.0889	0.0892	11.2048	0.9960	54
7	0.0718	0.0720	13.8940	0.9974	53	7	0.0892	0.0895	11.1681	0.9960	53
8	0.0721	0.0723	13.8378	0.9974	52	8	0.0895	0.0898	11.1316	0.9960	52
9	0.0724	0.0726	13.7821	0.9974	51	9	0.0898	0.0901	11.0954	0.9960	51
10	0.0727	0.0729	13.7267	0.9974	50	10	0.0901	0.0904	11.0594	0.9959	50
11	0.0729	0.0731	13.6719	0.9973	49	11	0.0903	0.0907	11.0237	0.9959	49
12	0.0732	0.0734	13.6174	0.9973	48	12	0.0906	0.0910	10.9882	0.9959	48
13	0.0735	0.0737	13.5634	0.9973	47	13	0.0909	0.0913	10.9529	0.9959	47
14	0.0738	0.0740	13.5098	0.9973	46	14	0.0912	0.0916	10.9178	0.9958	46
15	0.0741	0.0743	13.4566	0.9973	45	15	0.0915	0.0919	10.8829	0.9958	45
16	0.0744	0.0746	13.4039	0.9972	44	16	0.0918	0.0922	10.8483	0.9958	44
17	0.0747	0.0749	13.3515	0.9972	43	17	0.0921	0.0925	10.8139	0.9958	43
18	0.0750	0.0752	13.2996	0.9972	42	18	0.0924	0.0928	10.7797	0.9957	42
19	0.0753	0.0755	13.2480	0.9972	41	19	0.0927	0.0931	10.7457	0.9957	41
20	0.0756	0.0758	13.1969	0.9971	40	20	0.0929	0.0934	10.7119	0.9957	40
21	0.0758	0.0761	13.1461	0.9971	39	21	0.0932	0.0936	10.6783	0.9956	39
22	0.0761	0.0764	13.0958	0.9971	38	22	0.0935	0.0939	10.6450	0.9956	38
23	0.0764	0.0767	13.0458	0.9971	37	23	0.0938	0.0942	10.6118	0.9956	37
24	0.0767	0.0769	12.9962	0.9971	36	24	0.0941	0.0945	10.5789	0.9956	36
25	0.0770	0.0772	12.9469	0.9970	35	25	0.0944	0.0948	10.5462	0.9955	35
26	0.0773	0.0775	12.8981	0.9970	34	26	0.0947	0.0951	10.5136	0.9955	34
27	0.0776	0.0778	12.8496	0.9970	33	27	0.0950	0.0954	10.4813	0.9955	33
28	0.0779	0.0781	12.8014	0.9970	32	28	0.0953	0.0957	10.4491	0.9955	32
29	0.0782	0.0784	12.7536	0.9969	31	29	0.0956	0.0960	10.4172	0.9954	31
30	0.0785	0.0787	12.7062	0.9969	30	30	0.0958	0.0963	10.3854	0.9954	30
31	0.0787	0.0790	12.6591	0.9969	29	31	0.0961	0.0966	10.3538	0.9954	29
32	0.0790	0.0793	12.6124	0.9969	28	32	0.0964	0.0969	10.3224	0.9953	28
33	0.0793	0.0796	12.5660	0.9968	27	33	0.0967	0.0972	10.2913	0.9953	27
34	0.0796	0.0799	12.5199	0.9968	26	34	0.0970	0.0975	10.2602	0.9953	26
35	0.0799	0.0802	12.4742	0.9968	25	35	0.0973	0.0978	10.2294	0.9953	25
36	0.0802	0.0805	12.4288	0.9968	24	36	0.0976	0.0981	10.1988	0.9952	24
37	0.0805	0.0808	12.3838	0.9968	23	37	0.0979	0.0983	10.1683	0.9952	23
38	0.0808	0.0810	12.3390	0.9967	22	38	0.0982	0.0986	10.1381	0.9952	22
39	0.0811	0.0813	12.2946	0.9967	21	39	0.0985	0.0989	10.1080	0.9951	21
40	0.0814	0.0816	12.2505	0.9967	20	40	0.0987	0.0992	10.0780	0.9951	20
41	0.0816	0.0819	12.2067	0.9967	19	41	0.0990	0.0995	10.0483	0.9951	19
42	0.0819	0.0822	12.1632	0.9966	18	42	0.0993	0.0998	10.0187	0.9951	18
43	0.0822	0.0825	12.1201	0.9966	17	43	0.0996	0.1001	9.9893	0.9950	17
44	0.0825	0.0828	12.0772	0.9966	16	44	0.0999	0.1004	9.9601	0.9950	16
45	0.0828	0.0831	12.0346	0.9966	15	45	0.1002	0.1007	9.9310	0.9950	15
46	0.0831	0.0834	11.9923	0.9965	14	46	0.1005	0.1010	9.9021	0.9949	14
47	0.0834	0.0837	11.9504	0.9965	13	47	0.1008	0.1013	9.8734	0.9949	13
48	0.0837	0.0840	11.9087	0.9965	12	48	0.1011	0.1016	9.8448	0.9949	12
49	0.0840	0.0843	11.8673	0.9965	11	49	0.1013	0.1019	9.8164	0.9949	11
50	0.0843	0.0846	11.8262	0.9964	10	50	0.1016	0.1022	9.7882	0.9948	10
51	0.0845	0.0849	11.7853	0.9964	9	51	0.1019	0.1025	9.7601	0.9948	9
52	0.0848	0.0851	11.7448	0.9964	8	52	0.1022	0.1028	9.7322	0.9948	8
53	0.0851	0.0854	11.7045	0.9964	7	53	0.1025	0.1030	9.7044	0.9947	7
54	0.0854	0.0857	11.6645	0.9963	6	54	0.1028	0.1033	9.6768	0.9947	6
55	0.0857	0.0860	11.6248	0.9963	5	55	0.1031	0.1036	9.6493	0.9947	5
56	0.0860	0.0863	11.5853	0.9963	4	56	0.1034	0.1039	9.6220	0.9946	4
57	0.0863	0.0866	11.5461	0.9963	3	57	0.1037	0.1042	9.5949	0.9946	3
58	0.0866	0.0869	11.5072	0.9962	2	58	0.1039	0.1045	9.5679	0.9946	2
59	0.0869	0.0872	11.4685	0.9962	1	59	0.1042	0.1048	9.5411	0.9946	1
60	0.0872	0.0875	11.4301	0.9962	0	60	0.1045	0.1051	9.5144	0.9945	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
85°						84°					

6°						7°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.1045	0.1051	9.5144	0.9945	60	0	0.1219	0.1228	8.1443	0.9925	60
1	0.1048	0.1054	9.4878	0.9945	59	1	0.1222	0.1231	8.1248	0.9925	59
2	0.1051	0.1057	9.4614	0.9945	58	2	0.1224	0.1234	8.1054	0.9925	58
3	0.1054	0.1060	9.4352	0.9944	57	3	0.1227	0.1237	8.0860	0.9924	57
4	0.1057	0.1063	9.4090	0.9944	56	4	0.1230	0.1240	8.0667	0.9924	56
5	0.1060	0.1066	9.3831	0.9944	55	5	0.1233	0.1243	8.0476	0.9924	55
6	0.1063	0.1069	9.3572	0.9943	54	6	0.1236	0.1246	8.0285	0.9923	54
7	0.1066	0.1072	9.3315	0.9943	53	7	0.1239	0.1249	8.0095	0.9923	53
8	0.1068	0.1075	9.3060	0.9943	52	8	0.1242	0.1251	7.9906	0.9923	52
9	0.1071	0.1078	9.2806	0.9942	51	9	0.1245	0.1254	7.9718	0.9922	51
10	0.1074	0.1080	9.2553	0.9942	50	10	0.1248	0.1257	7.9530	0.9922	50
11	0.1077	0.1083	9.2302	0.9942	49	11	0.1250	0.1260	7.9344	0.9922	49
12	0.1080	0.1086	9.2052	0.9942	48	12	0.1253	0.1263	7.9158	0.9921	48
13	0.1083	0.1089	9.1803	0.9941	47	13	0.1256	0.1266	7.8973	0.9921	47
14	0.1086	0.1092	9.1555	0.9941	46	14	0.1259	0.1269	7.8789	0.9920	46
15	0.1089	0.1095	9.1309	0.9941	45	15	0.1262	0.1272	7.8606	0.9920	45
16	0.1092	0.1098	9.1065	0.9940	44	16	0.1265	0.1275	7.8424	0.9920	44
17	0.1094	0.1101	9.0821	0.9940	43	17	0.1268	0.1278	7.8243	0.9919	43
18	0.1097	0.1104	9.0579	0.9940	42	18	0.1271	0.1281	7.8062	0.9919	42
19	0.1100	0.1107	9.0338	0.9939	41	19	0.1274	0.1284	7.7882	0.9919	41
20	0.1103	0.1110	9.0098	0.9939	40	20	0.1276	0.1287	7.7704	0.9918	40
21	0.1106	0.1113	8.9860	0.9939	39	21	0.1279	0.1290	7.7525	0.9918	39
22	0.1109	0.1116	8.9623	0.9938	38	22	0.1282	0.1293	7.7348	0.9917	38
23	0.1112	0.1119	8.9387	0.9938	37	23	0.1286	0.1296	7.7171	0.9917	37
24	0.1115	0.1122	8.9152	0.9938	36	24	0.1288	0.1299	7.6996	0.9917	36
25	0.1118	0.1125	8.8919	0.9937	35	25	0.1291	0.1302	7.6821	0.9916	35
26	0.1120	0.1128	8.8686	0.9937	34	26	0.1294	0.1305	7.6647	0.9916	34
27	0.1123	0.1131	8.8455	0.9937	33	27	0.1297	0.1308	7.6473	0.9916	33
28	0.1126	0.1133	8.8225	0.9936	32	28	0.1299	0.1311	7.6301	0.9915	32
29	0.1129	0.1136	8.7996	0.9936	31	29	0.1302	0.1314	7.6129	0.9915	31
30	0.1132	0.1139	8.7769	0.9936	30	30	0.1305	0.1317	7.5958	0.9914	30
31	0.1135	0.1142	8.7542	0.9935	29	31	0.1308	0.1319	7.5787	0.9914	29
32	0.1138	0.1145	8.7317	0.9935	28	32	0.1311	0.1322	7.5618	0.9914	28
33	0.1141	0.1148	8.7093	0.9935	27	33	0.1314	0.1325	7.5449	0.9913	27
34	0.1144	0.1151	8.6870	0.9934	26	34	0.1317	0.1328	7.5281	0.9913	26
35	0.1146	0.1154	8.6648	0.9934	25	35	0.1320	0.1331	7.5113	0.9913	25
36	0.1149	0.1157	8.6427	0.9934	24	36	0.1323	0.1334	7.4947	0.9912	24
37	0.1152	0.1160	8.6208	0.9933	23	37	0.1325	0.1337	7.4781	0.9912	23
38	0.1155	0.1163	8.5989	0.9933	22	38	0.1328	0.1340	7.4615	0.9911	22
39	0.1158	0.1166	8.5772	0.9933	21	39	0.1331	0.1343	7.4451	0.9911	21
40	0.1161	0.1169	8.5555	0.9932	20	40	0.1334	0.1346	7.4287	0.9911	20
41	0.1164	0.1172	8.5340	0.9932	19	41	0.1337	0.1349	7.4124	0.9910	19
42	0.1167	0.1175	8.5126	0.9932	18	42	0.1340	0.1352	7.3962	0.9910	18
43	0.1170	0.1178	8.4913	0.9931	17	43	0.1343	0.1355	7.3800	0.9909	17
44	0.1172	0.1181	8.4701	0.9931	16	44	0.1346	0.1358	7.3639	0.9909	16
45	0.1175	0.1184	8.4490	0.9931	15	45	0.1349	0.1361	7.3479	0.9909	15
46	0.1178	0.1187	8.4280	0.9930	14	46	0.1351	0.1364	7.3319	0.9908	14
47	0.1181	0.1189	8.4071	0.9930	13	47	0.1354	0.1367	7.3160	0.9908	13
48	0.1184	0.1192	8.3863	0.9930	12	48	0.1357	0.1370	7.3002	0.9907	12
49	0.1187	0.1195	8.3656	0.9929	11	49	0.1360	0.1373	7.2844	0.9907	11
50	0.1190	0.1198	8.3450	0.9929	10	50	0.1363	0.1376	7.2687	0.9907	10
51	0.1193	0.1201	8.3245	0.9929	9	51	0.1366	0.1379	7.2531	0.9906	9
52	0.1196	0.1204	8.3041	0.9928	8	52	0.1369	0.1382	7.2375	0.9906	8
53	0.1198	0.1207	8.2838	0.9928	7	53	0.1372	0.1385	7.2220	0.9905	7
54	0.1201	0.1210	8.2636	0.9928	6	54	0.1374	0.1388	7.2066	0.9905	6
55	0.1204	0.1213	8.2434	0.9927	5	55	0.1377	0.1391	7.1912	0.9905	5
56	0.1207	0.1216	8.2234	0.9927	4	56	0.1380	0.1394	7.1759	0.9904	4
57	0.1210	0.1219	8.2035	0.9927	3	57	0.1383	0.1397	7.1607	0.9904	3
58	0.1213	0.1222	8.1837	0.9926	2	58	0.1386	0.1399	7.1455	0.9903	2
59	0.1216	0.1225	8.1640	0.9926	1	59	0.1389	0.1402	7.1304	0.9903	1
60	0.1219	0.1228	8.1443	0.9925	0	60	0.1392	0.1405	7.1154	0.9903	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
	83°						82°				

8°						9°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.1392	0.1405	7.1154	0.9903	60	0	0.1564	0.1584	6.3138	0.9877	60
1	0.1395	0.1408	7.1004	0.9902	59	1	0.1567	0.1587	6.3019	0.9876	59
2	0.1397	0.1411	7.0855	0.9902	58	2	0.1570	0.1590	6.2901	0.9876	58
3	0.1400	0.1414	7.0706	0.9901	57	3	0.1573	0.1593	6.2783	0.9876	57
4	0.1403	0.1417	7.0558	0.9901	56	4	0.1576	0.1596	6.2666	0.9875	56
5	0.1406	0.1420	7.0410	0.9901	55	5	0.1579	0.1599	6.2549	0.9875	55
6	0.1409	0.1423	7.0264	0.9900	54	6	0.1582	0.1602	6.2432	0.9874	54
7	0.1412	0.1426	7.0117	0.9900	53	7	0.1584	0.1605	6.2316	0.9874	53
8	0.1415	0.1429	6.9972	0.9899	52	8	0.1587	0.1608	6.2200	0.9873	52
9	0.1418	0.1432	6.9827	0.9899	51	9	0.1590	0.1611	6.2085	0.9873	51
10	0.1421	0.1435	6.9682	0.9899	50	10	0.1593	0.1614	6.1970	0.9872	50
11	0.1423	0.1438	6.9538	0.9898	49	11	0.1596	0.1617	6.1856	0.9872	49
12	0.1426	0.1441	6.9395	0.9898	48	12	0.1599	0.1620	6.1742	0.9871	48
13	0.1429	0.1444	6.9252	0.9897	47	13	0.1602	0.1623	6.1628	0.9871	47
14	0.1432	0.1447	6.9110	0.9897	46	14	0.1605	0.1626	6.1515	0.9870	46
15	0.1435	0.1450	6.8969	0.9897	45	15	0.1607	0.1629	6.1402	0.9870	45
16	0.1438	0.1453	6.8828	0.9896	44	16	0.1610	0.1632	6.1290	0.9869	44
17	0.1441	0.1456	6.8687	0.9896	43	17	0.1613	0.1635	6.1178	0.9869	43
18	0.1444	0.1459	6.8548	0.9895	42	18	0.1616	0.1638	6.1066	0.9869	42
19	0.1446	0.1462	6.8408	0.9895	41	19	0.1619	0.1641	6.0955	0.9868	41
20	0.1449	0.1465	6.8269	0.9894	40	20	0.1622	0.1644	6.0844	0.9868	40
21	0.1452	0.1468	6.8131	0.9894	39	21	0.1625	0.1647	6.0734	0.9867	39
22	0.1455	0.1471	6.7994	0.9894	38	22	0.1628	0.1650	6.0624	0.9867	38
23	0.1458	0.1474	6.7856	0.9893	37	23	0.1630	0.1653	6.0514	0.9866	37
24	0.1461	0.1477	6.7720	0.9893	36	24	0.1633	0.1655	6.0405	0.9866	36
25	0.1464	0.1480	6.7584	0.9892	35	25	0.1636	0.1658	6.0296	0.9865	35
26	0.1467	0.1483	6.7448	0.9892	34	26	0.1639	0.1661	6.0188	0.9865	34
27	0.1469	0.1486	6.7313	0.9891	33	27	0.1642	0.1664	6.0080	0.9864	33
28	0.1472	0.1489	6.7179	0.9891	32	28	0.1645	0.1667	5.9972	0.9864	32
29	0.1475	0.1492	6.7045	0.9891	31	29	0.1648	0.1670	5.9865	0.9863	31
30	0.1478	0.1495	6.6912	0.9890	30	30	0.1650	0.1673	5.9758	0.9863	30
31	0.1481	0.1497	6.6779	0.9890	29	31	0.1653	0.1676	5.9651	0.9862	29
32	0.1484	0.1500	6.6646	0.9889	28	32	0.1656	0.1679	5.9545	0.9862	28
33	0.1487	0.1503	6.6514	0.9889	27	33	0.1659	0.1682	5.9439	0.9861	27
34	0.1490	0.1506	6.6383	0.9888	26	34	0.1662	0.1685	5.9333	0.9861	26
35	0.1492	0.1509	6.6252	0.9888	25	35	0.1665	0.1688	5.9228	0.9860	25
36	0.1495	0.1512	6.6122	0.9888	24	36	0.1668	0.1691	5.9124	0.9860	24
37	0.1498	0.1515	6.5992	0.9887	23	37	0.1671	0.1694	5.9019	0.9859	23
38	0.1501	0.1518	6.5863	0.9887	22	38	0.1673	0.1697	5.8915	0.9859	22
39	0.1504	0.1521	6.5734	0.9886	21	39	0.1676	0.1700	5.8811	0.9859	21
40	0.1507	0.1524	6.5606	0.9886	20	40	0.1679	0.1703	5.8708	0.9858	20
41	0.1510	0.1527	6.5478	0.9885	19	41	0.1682	0.1706	5.8605	0.9858	19
42	0.1513	0.1530	6.5350	0.9885	18	42	0.1685	0.1709	5.8502	0.9857	18
43	0.1515	0.1533	6.5223	0.9884	17	43	0.1688	0.1712	5.8400	0.9857	17
44	0.1518	0.1536	6.5097	0.9884	16	44	0.1691	0.1715	5.8298	0.9856	16
45	0.1521	0.1539	6.4971	0.9884	15	45	0.1693	0.1718	5.8197	0.9856	15
46	0.1524	0.1542	6.4846	0.9883	14	46	0.1696	0.1721	5.8095	0.9855	14
47	0.1527	0.1545	6.4721	0.9883	13	47	0.1699	0.1724	5.7994	0.9855	13
48	0.1530	0.1548	6.4596	0.9882	12	48	0.1702	0.1727	5.7894	0.9854	12
49	0.1533	0.1551	6.4472	0.9882	11	49	0.1705	0.1730	5.7794	0.9854	11
50	0.1536	0.1554	6.4348	0.9881	10	50	0.1708	0.1733	5.7694	0.9853	10
51	0.1538	0.1557	6.4225	0.9881	9	51	0.1711	0.1736	5.7594	0.9853	9
52	0.1541	0.1560	6.4103	0.9880	8	52	0.1714	0.1739	5.7495	0.9852	8
53	0.1544	0.1563	6.3980	0.9880	7	53	0.1716	0.1742	5.7396	0.9852	7
54	0.1547	0.1566	6.3859	0.9880	6	54	0.1719	0.1745	5.7297	0.9851	6
55	0.1550	0.1569	6.3737	0.9879	5	55	0.1722	0.1748	5.7199	0.9851	5
56	0.1553	0.1572	6.3617	0.9879	4	56	0.1725	0.1751	5.7101	0.9850	4
57	0.1556	0.1575	6.3496	0.9878	3	57	0.1728	0.1754	5.7004	0.9850	3
58	0.1559	0.1578	6.3376	0.9878	2	58	0.1731	0.1757	5.6906	0.9849	2
59	0.1561	0.1581	6.3257	0.9877	1	59	0.1734	0.1760	5.6809	0.9849	1
60	0.1564	0.1584	6.3138	0.9877	0	60	0.1736	0.1763	5.6713	0.9848	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
81°						80°					

10°						11°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.1736	0.1763	5.6713	0.9848	60	0	0.1908	0.1944	5.1446	0.9816	60
1	0.1739	0.1766	5.6617	0.9848	59	1	0.1911	0.1947	5.1366	0.9816	59
2	0.1742	0.1769	5.6521	0.9847	58	2	0.1914	0.1950	5.1286	0.9815	58
3	0.1745	0.1772	5.6425	0.9847	57	3	0.1917	0.1953	5.1207	0.9815	57
4	0.1748	0.1775	5.6329	0.9846	56	4	0.1920	0.1956	5.1128	0.9814	56
5	0.1751	0.1778	5.6234	0.9846	55	5	0.1922	0.1959	5.1049	0.9813	55
6	0.1754	0.1781	5.6140	0.9845	54	6	0.1925	0.1962	5.0970	0.9813	54
7	0.1757	0.1784	5.6045	0.9845	53	7	0.1928	0.1965	5.0892	0.9812	53
8	0.1759	0.1787	5.5951	0.9844	52	8	0.1931	0.1968	5.0814	0.9812	52
9	0.1762	0.1790	5.5857	0.9843	51	9	0.1934	0.1971	5.0736	0.9811	51
10	0.1765	0.1793	5.5764	0.9843	50	10	0.1937	0.1974	5.0658	0.9811	50
11	0.1768	0.1796	5.5671	0.9842	49	11	0.1939	0.1977	5.0581	0.9810	49
12	0.1771	0.1799	5.5578	0.9842	48	12	0.1942	0.1980	5.0504	0.9810	48
13	0.1774	0.1802	5.5485	0.9841	47	13	0.1945	0.1983	5.0427	0.9809	47
14	0.1777	0.1805	5.5393	0.9841	46	14	0.1948	0.1986	5.0350	0.9808	46
15	0.1779	0.1808	5.5301	0.9840	45	15	0.1951	0.1989	5.0273	0.9808	45
16	0.1782	0.1811	5.5209	0.9840	44	16	0.1954	0.1992	5.0197	0.9807	44
17	0.1785	0.1814	5.5118	0.9839	43	17	0.1957	0.1995	5.0121	0.9807	43
18	0.1788	0.1817	5.5026	0.9839	42	18	0.1959	0.1998	5.0045	0.9806	42
19	0.1791	0.1820	5.4936	0.9838	41	19	0.1962	0.2001	4.9969	0.9806	41
20	0.1794	0.1823	5.4845	0.9838	40	20	0.1965	0.2004	4.9894	0.9805	40
21	0.1797	0.1826	5.4755	0.9837	39	21	0.1968	0.2007	4.9819	0.9804	39
22	0.1799	0.1829	5.4665	0.9837	38	22	0.1971	0.2010	4.9744	0.9804	38
23	0.1802	0.1832	5.4575	0.9836	37	23	0.1974	0.2013	4.9669	0.9803	37
24	0.1805	0.1835	5.4486	0.9836	36	24	0.1977	0.2016	4.9594	0.9803	36
25	0.1808	0.1838	5.4397	0.9835	35	25	0.1979	0.2019	4.9520	0.9802	35
26	0.1811	0.1841	5.4308	0.9835	34	26	0.1982	0.2022	4.9446	0.9802	34
27	0.1814	0.1844	5.4219	0.9834	33	27	0.1985	0.2025	4.9372	0.9801	33
28	0.1817	0.1847	5.4131	0.9834	32	28	0.1988	0.2028	4.9298	0.9800	32
29	0.1819	0.1850	5.4043	0.9833	31	29	0.1991	0.2031	4.9225	0.9800	31
30	0.1822	0.1853	5.3955	0.9833	30	30	0.1994	0.2035	4.9152	0.9799	30
31	0.1825	0.1856	5.3868	0.9832	29	31	0.1997	0.2038	4.9078	0.9799	29
32	0.1828	0.1859	5.3781	0.9831	28	32	0.1999	0.2041	4.9006	0.9798	28
33	0.1831	0.1862	5.3694	0.9831	27	33	0.2002	0.2044	4.8933	0.9798	27
34	0.1834	0.1865	5.3607	0.9830	26	34	0.2005	0.2047	4.8860	0.9797	26
35	0.1837	0.1868	5.3521	0.9830	25	35	0.2008	0.2050	4.8788	0.9796	25
36	0.1840	0.1871	5.3435	0.9829	24	36	0.2011	0.2053	4.8716	0.9796	24
37	0.1842	0.1874	5.3349	0.9829	23	37	0.2014	0.2056	4.8644	0.9795	23
38	0.1845	0.1877	5.3263	0.9828	22	38	0.2016	0.2059	4.8573	0.9795	22
39	0.1848	0.1880	5.3178	0.9828	21	39	0.2019	0.2062	4.8501	0.9794	21
40	0.1851	0.1883	5.3093	0.9827	20	40	0.2022	0.2065	4.8430	0.9793	20
41	0.1854	0.1887	5.3008	0.9827	19	41	0.2025	0.2068	4.8359	0.9793	19
42	0.1857	0.1890	5.2924	0.9826	18	42	0.2028	0.2071	4.8288	0.9792	18
43	0.1860	0.1893	5.2839	0.9826	17	43	0.2031	0.2074	4.8218	0.9792	17
44	0.1862	0.1896	5.2755	0.9825	16	44	0.2034	0.2077	4.8147	0.9791	16
45	0.1865	0.1899	5.2672	0.9825	15	45	0.2036	0.2080	4.8077	0.9790	15
46	0.1868	0.1902	5.2588	0.9824	14	46	0.2039	0.2083	4.8007	0.9790	14
47	0.1871	0.1905	5.2505	0.9823	13	47	0.2042	0.2086	4.7937	0.9789	13
48	0.1874	0.1908	5.2422	0.9823	12	48	0.2045	0.2089	4.7867	0.9789	12
49	0.1877	0.1911	5.2339	0.9822	11	49	0.2048	0.2092	4.7798	0.9788	11
50	0.1880	0.1914	5.2257	0.9822	10	50	0.2051	0.2095	4.7729	0.9787	10
51	0.1882	0.1917	5.2174	0.9821	9	51	0.2054	0.2098	4.7659	0.9787	9
52	0.1885	0.1920	4.2092	0.9821	8	52	0.2056	0.2101	4.7591	0.9786	8
53	0.1888	0.1923	5.2011	0.9820	7	53	0.2059	0.2104	4.7522	0.9786	7
54	0.1891	0.1926	5.1929	0.9820	6	54	0.2062	0.2107	4.7453	0.9785	6
55	0.1894	0.1929	5.1848	0.9819	5	55	0.2065	0.2110	4.7385	0.9784	5
56	0.1897	0.1932	5.1767	0.9818	4	56	0.2068	0.2113	4.7317	0.9784	4
57	0.1900	0.1935	5.1686	0.9818	3	57	0.2071	0.2116	4.7249	0.9783	3
58	0.1902	0.1938	5.1606	0.9817	2	58	0.2073	0.2119	4.7181	0.9783	2
59	0.1905	0.1941	5.1526	0.9817	1	59	0.2076	0.2123	4.7114	0.9782	1
60	0.1908	0.1944	5.1446	0.9816	0	60	0.2079	0.2126	4.7046	0.9781	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
	79°						78°				

12°						13°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.2079	0.2126	4.7046	0.9781	60	0	0.22$\bar{5}$0	0.2309	4.33$1\bar{5}$	0.9744	60
1	0.2082	0.2129	4.6979	0.9781	59	1	0.2252	0.2312	4.3257	0.9743	59
2	0.208$\bar{5}$	0.2132	4.6912	0.9780	58	2	0.2255	0.231$\bar{5}$	4.3200	0.9742	58
3	0.2088	0.213$\bar{5}$	4.6845	0.9780	57	3	0.2258	0.2318	4.3143	0.9742	57
4	0.2090	0.2138	4.6779	0.9779	56	4	0.2261	0.2321	4.3086	0.9741	56
5	0.2093	0.2141	4.6712	0.9778	55	5	0.2264	0.2324	4.3029	0.9740	55
6	0.2096	0.2144	4.6646	0.9778	54	6	0.2267	0.2327	4.2972	0.9740	54
7	0.2099	0.2147	4.6580	0.9777	53	7	0.2269	0.2330	4.2916	0.9739	53
8	0.2102	0.21$\bar{5}$0	4.6514	0.9777	52	8	0.2272	0.2333	4.2859	0.9738	52
9	0.210$\bar{5}$	0.2153	4.6448	0.9776	51	9	0.2275	0.2336	4.2803	0.9738	51
10	0.2108	0.2156	4.6382	0.9775	50	10	0.2278	0.2339	4.2747	0.9737	50
11	0.2110	0.2159	4.6317	0.977$\bar{5}$	49	11	0.2281	0.2342	4.2691	0.9736	49
12	0.2113	0.2162	4.6252	0.9774	48	12	0.2284	0.2345	4.2635	0.9736	48
13	0.2116	0.2165	4.6187	0.9774	47	13	0.2286	0.2349	4.2580	0.9735	47
14	0.2119	0.2168	4.6122	0.9773	46	14	0.2289	0.2352	4.2524	0.9734	46
15	0.2122	0.2171	4.6057	0.9772	45	15	0.2292	0.235$\bar{5}$	4.2468	0.9734	45
16	0.212$\bar{5}$	0.2174	4.5993	0.9772	44	16	0.229$\bar{5}$	0.2358	4.2413	0.9733	44
17	0.2127	0.2177	4.5928	0.9771	43	17	0.2298	0.2361	4.2358	0.9732	43
18	0.2130	0.2180	4.5864	0.9770	42	18	0.2300	0.2364	4.2303	0.9732	42
19	0.2133	0.2183	4.5800	0.9770	41	19	0.2303	0.2367	4.2248	0.9731	41
20	0.2136	0.2186	4.5736	0.9769	40	20	0.2306	0.2370	4.2193	0.9730	40
21	0.2139	0.2189	4.5673	0.9769	39	21	0.2309	0.2373	4.2139	0.9730	39
22	0.2142	0.2193	4.5609	0.9768	38	22	0.2312	0.2376	4.2084	0.9729	38
23	0.214$\bar{5}$	0.2196	4.5546	0.9767	37	23	0.2315	0.2379	4.2030	0.9728	37
24	0.2147	0.2199	4.5483	0.9767	36	24	0.2317	0.2382	4.1976	0.9728	36
25	0.2150	0.2202	4.5420	0.9766	35	25	0.2320	0.2385	4.1922	0.9727	35
26	0.2153	0.220$\bar{5}$	4.5357	0.9765	34	26	0.2323	0.2388	4.1868	0.9726	34
27	0.2156	0.2208	4.5294	0.976$\bar{5}$	33	27	0.2326	0.2392	4.1814	0.9726	33
28	0.2159	0.2211	4.5232	0.9764	32	28	0.2329	0.239$\bar{5}$	4.1760	0.9725	32
29	0.2162	0.2214	4.5169	0.9764	31	29	0.2332	0.2398	4.1706	0.9724	31
30	0.2164	0.2217	4.5107	0.9763	30	30	0.2334	0.2401	4.1653	0.9724	30
31	0.2167	0.2220	4.5045	0.9762	29	31	0.2337	0.2404	4.1600	0.9723	29
32	0.2170	0.2223	4.4983	0.9762	28	32	0.2340	0.2407	4.1547	0.9722	28
33	0.2173	0.2226	4.4922	0.9761	27	33	0.2343	0.2410	4.1493	0.9722	27
34	0.2176	0.2229	4.4860	0.9760	26	34	0.2346	0.2413	4.1441	0.9721	26
35	0.2179	0.2232	4.4799	0.9760	25	35	0.2349	0.2416	4.1388	0.9720	25
36	0.2181	0.2235	4.4737	0.9759	24	36	0.2351	0.2419	4.1335	0.9720	24
37	0.2184	0.2238	4.4676	0.9759	23	37	0.2354	0.2422	4.1282	0.9719	23
38	0.2187	0.2241	4.4615	0.9758	22	38	0.2357	0.2425	4.1230	0.9718	22
39	0.2190	0.2244	4.455$\bar{5}$	0.9757	21	39	0.2360	0.2428	4.1178	0.9718	21
40	0.2193	0.2247	4.4494	0.9757	20	40	0.2363	0.2432	4.1126	0.9717	20
41	0.2196	0.2251	4.4434	0.9756	19	41	0.2366	0.243$\bar{5}$	4.1074	0.9716	19
42	0.2198	0.2254	4.4373	0.9755	18	42	0.2368	0.2438	4.1022	0.9715	18
43	0.2201	0.2257	4.4313	0.975$\bar{5}$	17	43	0.2371	0.2441	4.0970	0.971$\bar{5}$	17
44	0.2204	0.2260	4.4253	0.9754	16	44	0.2374	0.2444	4.0918	0.9714	16
45	0.2207	0.2263	4.4194	0.9753	15	45	0.2377	0.2447	4.0867	0.9713	15
46	0.2210	0.2266	4.4134	0.9753	14	46	0.2380	0.2450	4.0815	0.9713	14
47	0.2213	0.2269	4.407$\bar{5}$	0.9752	13	47	0.2383	0.2453	4.0764	0.9712	13
48	0.2215	0.2272	4.4015	0.9751	12	48	0.2385	0.2456	4.0713	0.9711	12
49	0.2218	0.2275	4.3956	0.9751	11	49	0.2388	0.2459	4.0662	0.9711	11
50	0.2221	0.2278	4.3897	0.9750	10	50	0.2391	0.2462	4.0611	0.9710	10
51	0.2224	0.2281	4.3838	0.97$\bar{5}$0	9	51	0.2394	0.2465	4.0560	0.9709	9
52	0.2227	0.2284	4.3779	0.9749	8	52	0.2397	0.2469	4.0509	0.9709	8
53	0.2230	0.2287	4.3721	0.9748	7	53	0.2399	0.2472	4.0459	0.9708	7
54	0.2233	0.2290	4.3662	0.9748	6	54	0.2402	0.247$\bar{5}$	4.0408	0.9707	6
55	0.2235	0.2293	4.3604	0.9747	5	55	0.2405	0.2478	4.0358	0.9706	5
56	0.2238	0.2296	4.3546	0.9746	4	56	0.2408	0.2481	4.0308	0.9706	4
57	0.2241	0.2299	4.3488	0.9746	3	57	0.2411	0.2484	4.0257	0.9705	3
58	0.2244	0.2303	4.3430	0.9745	2	58	0.2414	0.2487	4.0207	0.9704	2
59	0.2247	0.2306	4.3372	0.9744	1	59	0.2416	0.2490	4.0158	0.9704	1
60	0.22$\bar{5}$0	0.2309	4.3315	0.9744	0	60	0.2419	0.2493	4.0108	0.9703	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
77°						76°					

14°						15°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.2419	0.2493	4.0108	0.9703	60	0	0.2588	0.2679	3.7321	0.9659	60
1	0.2422	0.2496	4.0058	0.9702	59	1	0.2591	0.2683	3.7277	0.9659	59
2	0.2425	0.2499	4.0009	0.9702	58	2	0.2594	0.2686	3.7234	0.9658	58
3	0.2428	0.2503	3.9959	0.9701	57	3	0.2597	0.2689	3.7191	0.9657	57
4	0.2431	0.2506	3.9910	0.9700	56	4	0.2599	0.2692	3.7148	0.9656	56
5	0.2433	0.2509	3.9861	0.9699	55	5	0.2602	0.2695	3.7105	0.9655	55
6	0.2436	0.2512	3.9812	0.9699	54	6	0.2605	0.2698	3.7062	0.9655	54
7	0.2439	0.2515	3.9763	0.9698	53	7	0.2608	0.2701	3.7019	0.9654	53
8	0.2442	0.2518	3.9714	0.9697	52	8	0.2611	0.2704	3.6976	0.9653	52
9	0.2445	0.2521	3.9665	0.9697	51	9	0.2613	0.2708	3.6933	0.9652	51
10	0.2447	0.2524	3.9617	0.9696	50	10	0.2616	0.2711	3.6891	0.9652	50
11	0.2450	0.2527	3.9568	0.9695	49	11	0.2619	0.2714	3.6848	0.9651	49
12	0.2453	0.2530	3.9520	0.9694	48	12	0.2622	0.2717	3.6806	0.9650	48
13	0.2456	0.2533	3.9471	0.9694	47	13	0.2625	0.2720	3.6764	0.9649	47
14	0.2459	0.2537	3.9423	0.9693	46	14	0.2628	0.2723	3.6722	0.9649	46
15	0.2462	0.2540	3.9375	0.9692	45	15	0.2630	0.2726	3.6680	0.9648	45
16	0.2464	0.2543	3.9327	0.9692	44	16	0.2633	0.2729	3.6638	0.9647	44
17	0.2467	0.2546	3.9279	0.9691	43	17	0.2636	0.2733	3.6596	0.9646	43
18	0.2470	0.2549	3.9232	0.9690	42	18	0.2639	0.2736	3.6554	0.9646	42
19	0.2473	0.2552	3.9184	0.9689	41	19	0.2642	0.2739	3.6512	0.9645	41
20	0.2476	0.2555	3.9136	0.9689	40	20	0.2644	0.2742	3.6470	0.9644	40
21	0.2478	0.2558	3.9089	0.9688	39	21	0.2647	0.2745	3.6429	0.9643	39
22	0.2481	0.2561	3.9042	0.9687	38	22	0.2650	0.2748	3.6387	0.9642	38
23	0.2484	0.2564	3.8995	0.9687	37	23	0.2653	0.2751	3.6346	0.9642	37
24	0.2487	0.2568	3.8947	0.9686	36	24	0.2656	0.2754	3.6305	0.9641	36
25	0.2490	0.2571	3.8900	0.9685	35	25	0.2658	0.2758	3.6264	0.9640	35
26	0.2493	0.2574	3.8854	0.9684	34	26	0.2661	0.2761	3.6222	0.9639	34
27	0.2495	0.2577	3.8807	0.9684	33	27	0.2664	0.2764	3.6181	0.9639	33
28	0.2498	0.2580	3.8760	0.9683	32	28	0.2667	0.2767	3.6140	0.9638	32
29	0.2501	0.2583	3.8714	0.9682	31	29	0.2670	0.2770	3.6100	0.9637	31
30	0.2504	0.2586	3.8667	0.9681	30	30	0.2672	0.2773	3.6059	0.9636	30
31	0.2507	0.2589	3.8621	0.9681	29	31	0.2675	0.2776	3.6018	0.9636	29
32	0.2509	0.2592	3.8575	0.9680	28	32	0.2678	0.2780	3.5978	0.9635	28
33	0.2512	0.2595	3.8528	0.9679	27	33	0.2681	0.2783	3.5937	0.9634	27
34	0.2515	0.2599	3.8482	0.9679	26	34	0.2684	0.2786	3.5897	0.9633	26
35	0.2518	0.2602	3.8436	0.9678	25	35	0.2686	0.2789	3.5856	0.9632	25
36	0.2521	0.2605	3.8391	0.9677	24	36	0.2689	0.2792	3.5816	0.9632	24
37	0.2524	0.2608	3.8345	0.9676	23	37	0.2692	0.2795	3.5776	0.9631	23
38	0.2526	0.2611	3.8299	0.9676	22	38	0.2695	0.2798	3.5736	0.9630	22
39	0.2529	0.2614	3.8254	0.9675	21	39	0.2698	0.2801	3.5696	0.9629	21
40	0.2532	0.2617	3.8208	0.9674	20	40	0.2700	0.2805	3.5656	0.9628	20
41	0.2535	0.2620	3.8163	0.9673	19	41	0.2703	0.2808	3.5616	0.9628	19
42	0.2538	0.2623	3.8118	0.9673	18	42	0.2706	0.2811	3.5576	0.9627	18
43	0.2540	0.2627	3.8073	0.9672	17	43	0.2709	0.2814	3.5536	0.9626	17
44	0.2543	0.2630	3.8028	0.9671	16	44	0.2712	0.2817	3.5497	0.9625	16
45	0.2546	0.2633	3.7983	0.9670	15	45	0.2714	0.2820	3.5457	0.9625	15
46	0.2549	0.2636	3.7938	0.9670	14	46	0.2717	0.2823	3.5418	0.9624	14
47	0.2552	0.2639	3.7893	0.9669	13	47	0.2720	0.2827	3.5379	0.9623	13
48	0.2554	0.2642	3.7848	0.9668	12	48	0.2723	0.2830	3.5339	0.9622	12
49	0.2557	0.2645	3.7804	0.9667	11	49	0.2726	0.2833	3.5300	0.9621	11
50	0.2560	0.2648	3.7760	0.9667	10	50	0.2728	0.2836	3.5261	0.9621	10
51	0.2563	0.2651	3.7715	0.9666	9	51	0.2731	0.2839	3.5222	0.9620	9
52	0.2566	0.2655	3.7671	0.9665	8	52	0.2734	0.2842	3.5183	0.9619	8
53	0.2569	0.2658	3.7627	0.9665	7	53	0.2737	0.2845	3.5144	0.9618	7
54	0.2571	0.2661	3.7583	0.9664	6	54	0.2740	0.2849	3.5105	0.9617	6
55	0.2574	0.2664	3.7539	0.9663	5	55	0.2742	0.2852	3.5067	0.9617	5
56	0.2577	0.2667	3.7495	0.9662	4	56	0.2745	0.2855	3.5028	0.9616	4
57	0.2580	0.2670	3.7451	0.9662	3	57	0.2748	0.2858	3.4989	0.9615	3
58	0.2583	0.2673	3.7408	0.9661	2	58	0.2751	0.2861	3.4951	0.9614	2
59	0.2585	0.2676	3.7364	0.9660	1	59	0.2754	0.2864	3.4912	0.9613	1
60	0.2588	0.2679	3.7321	0.9659	0	60	0.2756	0.2867	3.4874	0.9613	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
75°						74°					

16°						17°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.2756	0.2867	3.4874	0.9613	60	0	0.2924	0.3057	3.2709	0.9563	60
1	0.2759	0.2871	3.4836	0.9612	59	1	0.2926	0.3060	3.2675	0.9562	59
2	0.2762	0.2874	3.4798	0.9611	58	2	0.2929	0.3064	3.2641	0.9561	58
3	0.2765	0.2877	3.4760	0.9610	57	3	0.2932	0.3067	3.2607	0.9560	57
4	0.2768	0.2880	3.4722	0.9609	56	4	0.2935	0.3070	3.2573	0.9560	56
5	0.2770	0.2883	3.4684	0.0609	55	5	0.2938	0.3073	3.2539	0.9559	55
6	0.2773	0.2886	3.4646	0.9608	54	6	0.2940	0.3076	3.2506	0.9558	54
7	0.2776	0.2890	3.4608	0.9607	53	7	0.2943	0.3080	3.2472	0.9557	53
8	0.2779	0.2893	3.4570	0.9606	52	8	0.2946	0.3083	3.2438	0.9556	52
9	0.2782	0.2896	3.4533	0.9605	51	9	0.2949	0.3086	3.2405	0.9555	51
10	0.2784	0.2899	3.4495	0.9605	50	10	0.2952	0.3089	3.2371	0.9555	50
11	0.2787	0.2902	3.4458	0.9604	49	11	0.2954	0.3092	3.2338	0.9554	49
12	0.2790	0.2905	3.4420	0.9603	48	12	0.2957	0.3096	3.2305	0.9553	48
13	0.2793	0.2908	3.4383	0.9602	47	13	0.2960	0.3099	3.2272	0.9552	47
14	0.2795	0.2912	3.4346	0.9601	46	14	0.2963	0.3102	3.2238	0.9551	46
15	0.2798	0.2915	3.4308	0.9600	45	15	0.2965	0.3105	3.2205	0.9550	45
16	0.2801	0.2918	3.4271	0.9600	44	16	0.2968	0.3108	3.2172	0.9549	44
17	0.2804	0.2921	3.4234	0.9599	43	17	0.2971	0.3111	3.2139	0.9548	43
18	0.2807	0.2924	3.4197	0.9598	42	18	0.2974	0.3115	3.2106	0.9548	42
19	0.2809	0.2927	3.4160	0.9597	41	19	0.2977	0.3118	3.2073	0.9547	41
20	0.2812	0.2931	3.4124	0.9596	40	20	0.2979	0.3121	3.2041	0.9546	40
21	0.2815	0.2934	3.4087	0.9596	39	21	0.2982	0.3124	3.2008	0.9545	39
22	0.2818	0.2937	3.4050	0.9595	38	22	0.2985	0.3127	3.1975	0.9544	38
23	0.2821	0.2940	3.4014	0.9594	37	23	0.2988	0.3131	3.1943	0.9543	37
24	0.2823	0.2943	3.3977	0.9593	36	24	0.2990	0.3134	3.1910	0.9542	36
25	0.2826	0.2946	3.3941	0.9592	35	25	0.2993	0.3137	3.1878	0.9542	35
26	0.2829	0.2949	3.3904	0.9591	34	26	0.2996	0.3140	3.1845	0.9541	34
27	0.2832	0.2953	3.3868	0.9591	33	27	0.2999	0.3143	3.1813	0.9540	33
28	0.2835	0.2956	3.3832	0.9590	32	28	0.3002	0.3147	3.1780	0.9539	32
29	0.2837	0.2959	3.3796	0.9589	31	29	0.3004	0.3150	3.1748	0.9538	31
30	0.2840	0.2962	3.3759	0.9588	30	30	0.3007	0.3153	3.1716	0.9537	30
31	0.2843	0.2965	3.3723	0.9587	29	31	0.3010	0.3156	3.1684	0.9536	29
32	0.2846	0.2968	3.3687	0.9587	28	32	0.3013	0.3159	3.1652	0.9535	28
33	0.2849	0.2972	3.3652	0.9586	27	33	0.3015	0.3163	3.1620	0.9535	27
34	0.2851	0.2975	3.3616	0.9585	26	34	0.3018	0.3166	3.1588	0.9534	26
35	0.2854	0.2978	3.3580	0.9584	25	35	0.3021	0.3169	3.1556	0.9533	25
36	0.2857	0.2981	3.3544	0.9583	24	36	0.3024	0.3172	3.1524	0.9532	24
37	0.2860	0.2984	3.3509	0.9582	23	37	0.3026	0.3175	3.1492	0.9531	23
38	0.2862	0.2987	3.3473	0.9582	22	38	0.3029	0.3179	3.1460	0.9530	22
39	0.2865	0.2991	3.3438	0.9581	21	30	0.3032	0.3182	3.1429	0.9529	21
40	0.2868	0.2994	3.3402	0.9580	20	40	0.3035	0.3185	3.1397	0.9528	20
41	0.2871	0.2997	3.3367	0.9579	19	41	0.3038	0.3188	3.1366	0.9527	19
42	0.2874	0.3000	3.3332	0.9578	18	42	0.3040	0.3191	3.1334	0.9527	18
43	0.2876	0.3003	3.3297	0.9577	17	43	0.3043	0.3195	3.1303	0.9526	17
44	0.2879	0.3006	3.3261	0.9577	16	44	0.3046	0.3198	3.1271	0.9525	16
45	0.2882	0.3010	3.3226	0.9576	15	45	0.3049	0.3201	3.1240	0.9524	15
46	0.2885	0.3013	3.3191	0.9575	14	46	0.3051	0.3204	3.1209	0.9523	14
47	0.2888	0.3016	3.3156	0.9574	13	47	0.3054	0.3207	3.1178	0.9522	13
48	0.2890	0.3019	3.3122	0.9573	12	48	0.3057	0.3211	3.1146	0.9521	12
49	0.2893	0.3022	3.3087	0.9572	11	49	0.3060	0.3214	3.1115	0.9520	11
50	0.2896	0.3026	3.3052	0.9572	10	50	0.3062	0.3217	3.1084	0.9520	10
51	0.2899	0.3029	3.3017	0.9571	9	51	0.3065	0.3220	3.1053	0.9519	9
52	0.2901	0.3032	3.2983	0.9570	8	52	0.3068	0.3223	3.1022	0.9518	8
53	0.2904	0.3035	3.2948	0.9569	7	53	0.3071	0.3227	3.0991	0.9517	7
54	0.2907	0.3038	3.2914	0.9568	6	54	0.3074	0.3230	3.0961	0.9516	6
55	0.2910	0.3041	3.2879	0.9567	5	55	0.3076	0.3233	3.0930	0.9515	5
56	0.2913	0.3045	3.2845	0.9566	4	56	0.3079	0.3236	3.0899	0.9514	4
57	0.2915	0.3048	3.2811	0.9566	3	57	0.3082	0.3240	3.0868	0.9513	3
58	0.2918	0.3051	3.2777	0.9565	2	58	0.3085	0.3243	3.0838	0.9512	2
59	0.2921	0.3054	3.2743	0.9564	1	59	0.3087	0.3246	3.0807	0.9511	1
60	0.2924	0.3057	3.2709	0.9563	0	60	0.3090	0.3249	3.0777	0.9511	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
73°						72°					

18°						19°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.3090	0.3249	3.0777	0.9511	60	0	0.3256	0.3443	2.9042	0.9455	60
1	0.3093	0.3252	3.0746	0.9510	59	1	0.3258	0.3447	2.901$\bar{5}$	0.9454	59
2	0.3096	0.3256	3.0716	0.9509	58	2	0.3261	0.345$\bar{0}$	2.8987	0.9453	58
3	0.3098	0.3259	3.0686	0.9508	57	3	0.3264	0.3453	2.8960	0.9452	57
4	0.3101	0.3262	3.0655	0.9507	56	4	0.3267	0.3456	2.8933	0.9451	56
5	0.3104	0.3265	3.0625	0.9506	55	5	0.3269	0.3460	2.8905	0.9450	55
6	0.3107	0.3269	3.0595	0.9505	54	6	0.3272	0.3463	2.8878	0.9449	54
7	0.3110	0.3272	3.056$\bar{5}$	0.9504	53	7	0.327$\bar{5}$	0.3466	2.8851	0.9449	53
8	0.3112	0.327$\bar{5}$	3.053$\bar{5}$	0.9503	52	8	0.3278	0.3469	2.8824	0.9448	52
9	0.3115	0.3278	3.050$\bar{5}$	0.9502	51	9	0.3280	0.3473	2.8797	0.9447	51
10	0.3118	0.3281	3.047$\bar{5}$	0.9502	50	10	0.3283	0.3476	2.8770	0.9446	50
11	0.3121	0.328$\bar{5}$	3.0445	0.9501	49	11	0.3286	0.3479	2.8743	0.944$\bar{5}$	49
12	0.3123	0.3288	3.0415	0.95$\bar{0}$0	48	12	0.3289	0.3482	2.8716	0.9444	48
13	0.3126	0.3291	3.0385	0.9499	47	13	0.3291	0.3486	2.8689	0.9443	47
14	0.3129	0.3294	3.0356	0.9498	46	14	0.3294	0.3489	2.8662	0.9442	46
15	0.3132	0.3298	3.0326	0.9497	45	15	0.3297	0.3492	2.8636	0.9441	45
16	0.3134	0.3301	3.0296	0.9496	44	16	0.3300	0.3495	2.8609	0.9440	44
17	0.3137	0.3304	3.0267	0.9495	43	17	0.3302	0.3499	2.8582	0.9439	43
18	0.3140	0.3307	3.0237	0.9494	42	18	0.3305	0.3502	2.8556	0.9438	42
19	0.3143	0.3310	3.0208	0.9493	41	19	0.3308	0.3505	2.8529	0.9437	41
20	0.3145	0.3314	3.0178	0.9492	40	20	0.3311	0.3508	2.8502	0.9436	40
21	0.3148	0.3317	3.0149	0.9492	39	21	0.3313	0.3512	2.8476	0.9435	39
22	0.3151	0.3320	3.0120	0.9491	38	22	0.3316	0.3515	2.8449	0.9434	38
23	0.3154	0.3323	3.0090	0.9490	37	23	0.3319	0.3518	2.8423	0.9433	37
24	0.3156	0.3327	3.0061	0.9489	36	24	0.3322	0.3522	2.8397	0.9432	36
25	0.3159	0.3330	3.0032	0.9488	35	25	0.3324	0.352$\bar{5}$	2.8370	0.9431	35
26	0.3162	0.3333	3.0003	0.9487	34	26	0.3327	0.3528	2.8344	0.9430	34
27	0.316$\bar{5}$	0.3336	2.9974	0.9486	33	27	0.3330	0.3531	2.8318	0.9429	33
28	0.3168	0.3339	2.994$\bar{5}$	0.9485	32	28	0.3333	0.353$\bar{5}$	2.8291	0.9428	32
29	0.3170	0.3343	2.9916	0.9484	31	29	0.3335	0.3538	2.8265	0.9427	31
30	0.3173	0.3346	2.9887	0.9483	30	30	0.3338	0.3541	2.8239	0.9426	30
31	0.3176	0.3349	2.9858	0.9482	29	31	0.3341	0.3544	2.8213	0.9425	29
32	0.3179	0.3352	2.9829	0.9481	28	32	0.3344	0.3548	2.8187	0.9424	28
33	0.3181	0.3356	2.9800	0.9480	27	33	0.3346	0.3551	2.8161	0.9423	27
34	0.3184	0.3359	2.9772	0.9480	26	34	0.3349	0.3554	2.8135	0.9423	26
35	0.3187	0.3362	2.9743	0.9479	25	35	0.3352	0.3558	2.8109	0.9422	25
36	0.3190	0.3365	2.9714	0.9478	24	36	0.335$\bar{5}$	0.3561	2.8083	0.9421	24
37	0.3192	0.3369	2.9686	0.9477	23	37	0.3357	0.3564	2.8057	0.9420	23
38	0.3195	0.3372	2.9657	0.9476	22	38	0.3360	0.3567	2.8032	0.9419	22
39	0.3198	0.3375	2.9629	0.947$\bar{5}$	21	39	0.3363	0.3571	2.8006	0.9418	21
40	0.3201	0.3378	2.9600	0.9474	20	40	0.3365	0.3574	2.7980	0.9417	20
41	0.3203	0.3382	2.9572	0.9473	19	41	0.3368	0.3577	2.795$\bar{5}$	0.9416	19
42	0.3206	0.338$\bar{5}$	2.9544	0.9472	18	42	0.3371	0.3581	2.7929	0.941$\bar{5}$	18
43	0.3209	0.3388	2.9515	0.9471	17	43	0.3374	0.3584	2.7903	0.9414	17
44	0.3212	0.3391	2.9487	0.9470	16	44	0.3376	0.3587	2.7878	0.9413	16
45	0.3214	0.339$\bar{5}$	2.9459	0.9469	15	45	0.3379	0.3590	2.7852	0.9412	15
46	0.3217	0.3398	2.9431	0.9468	14	46	0.3382	0.3594	2.7827	0.9411	14
47	0.3220	0.3401	2.9403	0.9467	13	47	0.338$\bar{5}$	0.3597	2.7801	0.9410	13
48	0.3223	0.3404	2.937$\bar{5}$	0.9466	12	48	0.3387	0.3600	2.7776	0.9409	12
49	0.3225	0.3408	2.9347	0.9466	11	49	0.3390	0.3604	2.7751	0.9408	11
50	0.3228	0.3411	2.9319	0.946$\bar{5}$	10	50	0.3393	0.3607	2.7725	0.9407	10
51	0.3231	0.3414	2.9291	0.9464	9	51	0.3396	0.3610	2.7700	0.9406	9
52	0.3234	0.3417	2.9263	0.9463	8	52	0.3398	0.3613	2.767$\bar{5}$	0.940$\bar{5}$	8
53	0.3236	0.3421	2.9235	0.9462	7	53	0.3401	0.3617	2.76$\bar{5}$0	0.9404	7
54	0.3239	0.3424	2.9208	0.9461	6	54	0.3404	0.3620	2.762$\bar{5}$	0.9403	6
55	0.3242	0.3427	2.9180	0.9460	5	55	0.3407	0.3623	2.7600	0.9402	5
56	0.324$\bar{5}$	0.3430	2.9152	0.9459	4	56	0.3409	0.3627	2.757$\bar{5}$	0.9401	4
57	0.3247	0.3434	2.912$\bar{5}$	0.9458	3	57	0.3412	0.3630	2.75$\bar{5}$0	0.9400	3
58	0.3250	0.3437	2.9097	0.9457	2	58	0.341$\bar{5}$	0.3633	2.752$\bar{5}$	0.9399	2
59	0.3253	0.3440	2.9070	0.9456	1	59	0.3417	0.3636	2.75$\bar{0}$0	0.9398	1
60	0.3256	0.3443	2.9042	0.9455	0	60	0.3420	0.3640	2.747$\bar{5}$	0.9397	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
71°						70°					

20°						21°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.3420	0.3640	2.747$\bar{5}$	0.9397	60	0	0.3584	0.3839	2.6051	0.9336	60
1	0.3423	0.3643	2.74$\bar{5}$0	0.9396	59	1	0.3586	0.3842	2.6028	0.933$\bar{5}$	59
2	0.3426	0.3646	2.7425	0.939$\bar{5}$	58	2	0.3589	0.3845	2.6006	0.9334	58
3	0.3428	0.36$\bar{5}$0	2.7400	0.9394	57	3	0.3592	0.3849	2.5983	0.9333	57
4	0.343$\bar{1}$	0.3653	2.7376	0.9393	56	4	0.359$\bar{5}$	0.3852	2.5961	0.9332	56
5	0.3434	0.3656	2.7351	0.9392	55	5	0.3597	0.3855	2.5938	0.9331	55
6	0.3437	0.3659	2.7326	0.9391	54	6	0.3600	0.3859	2.5916	0.9330	54
7	0.3439	0.3663	2.7302	0.9390	53	7	0.3603	0.3862	2.5893	0.9328	53
8	0.3442	0.3666	2.7277	0.9389	52	8	0.3605	0.3865	2.5871	0.9327	52
9	0.344$\bar{5}$	0.3669	2.7253	0.9388	51	9	0.3608	0.3869	2.5848	0.9326	51
10	0.3448	0.3673	2.7228	0.9387	50	10	0.3611	0.3872	2.5826	0.9325	50
11	0.3450	0.3676	2.7204	0.9386	49	11	0.3614	0.3875	2.5804	0.9324	49
12	0.3453	0.3679	2.7179	0.938$\bar{5}$	48	12	0.3616	0.3879	2.5782	0.9323	48
13	0.3456	0.3683	2.715$\bar{5}$	0.9384	47	13	0.3619	0.3882	2.5759	0.9322	47
14	0.3458	0.3686	2.7130	0.9383	46	14	0.3622	0.3885	2.5737	0.9321	46
15	0.3461	0.3689	2.7106	0.9382	45	15	0.3624	0.3889	2.571$\bar{5}$	0.9320	45
16	0.3464	0.3693	2.7082	0.9381	44	16	0.3627	0.3892	2.5693	0.9319	44
17	0.3467	0.3696	2.7058	0.9380	43	17	0.3630	0.3895	2.5671	0.9318	43
18	0.3469	0.3699	2.7034	0.9379	42	18	0.3633	0.3899	2.5649	0.9317	42
19	0.3472	0.3702	2.7009	0.9378	41	19	0.3635	0.3902	2.5627	0.9316	41
20	0.347$\bar{5}$	0.3706	2.6985	0.9377	40	20	0.3638	0.3906	2.560$\bar{5}$	0.931$\bar{5}$	40
21	0.3478	0.3709	2.6961	0.9376	39	21	0.3641	0.3909	2.5583	0.9314	39
22	0.3480	0.3712	2.6937	0.937$\bar{5}$	38	22	0.3643	0.3912	2.5561	0.9313	38
23	0.3483	0.3716	2.6913	0.9374	37	23	0.3646	0.3916	2.5539	0.9312	37
24	0.3486	0.3719	2.6889	0.9373	36	24	0.3649	0.3919	2.5517	0.9311	36
25	0.3488	0.3722	2.6865	0.9372	35	25	0.3651	0.3922	2.5495	0.9309	35
26	0.3491	0.3726	2.6841	0.9371	34	26	0.3654	0.3926	2.5473	0.9308	34
27	0.3494	0.3729	2.6818	0.9370	33	27	0.3657	0.3929	2.5452	0.9307	33
28	0.3497	0.3732	2.6794	0.9369	32	28	0.3660	0.3932	2.5430	0.9306	32
29	0.3499	0.3736	2.6770	0.9368	31	29	0.3662	0.3936	2.5408	0.930$\bar{5}$	31
30	0.3502	0.3739	2.6746	0.9367	30	30	0.3665	0.3939	2.5386	0.9304	30
31	0.350$\bar{5}$	0.3742	2.6723	0.9366	29	31	0.3668	0.3942	2.536$\bar{5}$	0.9303	29
32	0.3508	0.3745	2.6699	0.936$\bar{5}$	28	32	0.3670	0.3946	2.5343	0.9302	28
33	0.3510	0.3749	2.6675	0.9364	27	33	0.3673	0.3949	2.5322	0.9301	27
34	0.3513	0.3752	2.6652	0.9363	26	34	0.3676	0.3953	2.5300	0.9300	26
35	0.3516	0.3755	2.6628	0.9362	25	35	0.3679	0.3956	2.5279	0.9299	25
36	0.3518	0.3759	2.660$\bar{5}$	0.9361	24	36	0.3681	0.3959	2.5257	0.9298	24
37	0.3521	0.3762	2.6581	0.9360	23	37	0.3684	0.3963	2.5236	0.9297	23
38	0.3524	0.3765	2.6558	0.9359	22	38	0.3687	0.3966	2.5214	0.9296	22
39	0.3527	0.3769	2.6534	0.9358	21	39	0.3689	0.3969	2.5193	0.929$\bar{5}$	21
40	0.3529	0.3772	2.6511	0.9356	20	40	0.3692	0.3973	2.5172	0.9293	20
41	0.3532	0.3775	2.6488	0.9355	19	41	0.369$\bar{5}$	0.3976	3.5150	0.9292	19
42	0.353$\bar{5}$	0.3779	2.6464	0.9354	18	42	0.3697	0.3979	2.5129	0.9291	18
43	0.3537	0.3782	2.6441	0.9353	17	43	0.3700	0.3983	2.5108	0.9290	17
44	0.3540	0.3785	2.6418	0.9352	16	44	0.3703	0.3986	2.5086	0.9289	16
45	0.3543	0.3789	2.639$\bar{5}$	0.9351	15	45	0.3706	0.3990	2.5065	0.9288	15
46	0.3546	0.3792	2.6371	0.9350	14	46	0.3708	0.3993	2.5044	0.9287	14
47	0.3548	0.3795	2.6348	0.9349	13	47	0.3711	0.3996	2.5023	0.9286	13
48	0.3551	0.3799	2.6325	0.9348	12	48	0.3714	0.4000	2.5002	0.928$\bar{5}$	12
49	0.3554	0.3802	2.6302	0.9347	11	49	0.3716	0.4003	2.4981	0.9284	11
50	0.3557	0.3805	2.6279	0.9346	10	50	0.3719	0.4006	2.4960	0.9283	10
51	0.3559	0.3809	2.6256	0.9345	9	51	0.3722	0.4010	2.4939	0.9282	9
52	0.3562	0.3812	2.6233	0.9344	8	52	0.3724	0.4013	2.4918	0.9281	8
53	0.356$\bar{5}$	0.3815	2.6210	0.9343	7	53	0.3727	0.4017	2.4897	0.9279	7
54	0.3567	0.3819	2.6187	0.9342	6	54	0.3730	0.4020	2.4876	0.9278	6
55	0.3570	0.3822	2.616$\bar{5}$	0.9341	5	55	0.3733	0.4023	2.485$\bar{5}$	0.9277	5
56	0.3573	0.3825	2.6142	0.9340	4	56	0.3735	0.4027	2.4834	0.9276	4
57	0.3576	0.3829	2.6119	0.9339	3	57	0.3738	0.4030	2.4813	0.9275	3
58	0.3578	0.3832	2.6096	0.9338	2	58	0.3741	0.4033	2.4792	0.9274	2
59	0.3581	0.3835	2.6074	0.9337	1	59	0.3743	0.4037	2.4772	0.9273	1
60	0.3584	0.3839	2.6051	0.9336	0	60	0.3746	0.4040	2.4751	0.9272	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
69°						68°					

22°						23°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.3746	0.4040	2.4751	0.9272	60	0	0.3907	0.4245	2.3559	0.9205	60
1	0.3749	0.4044	2.4730	0.9271	59	1	0.3910	0.4248	2.3539	0.9204	59
2	0.3751	0.4047	2.4709	0.9270	58	2	0.3913	0.4252	2.3520	0.9203	58
3	0.3754	0.4050	2.4689	0.9269	57	3	0.3915	0.4255	2.3501	0.9202	57
4	0.3757	0.4054	2.4668	0.9267	56	4	0.3918	0.4258	2.3483	0.9200	56
5	0.3760	0.4057	2.4648	0.9266	55	5	0.3921	0.4262	2.3464	0.9199	55
6	0.3762	0.4061	2.4627	0.9265	54	6	0.3923	0.4265	2.3445	0.9198	54
7	0.3765	0.4064	2.4606	0.9264	53	7	0.3926	0.4269	2.3426	0.9197	53
8	0.3768	0.4067	2.4586	0.9263	52	8	0.3929	0.4272	2.3407	0.9196	52
9	0.3770	0.4071	2.4566	0.9262	51	9	0.3931	0.4276	2.3388	0.9195	51
10	0.3773	0.4074	2.4545	0.9261	50	10	0.3934	0.4279	2.3369	0.9194	50
11	0.3776	0.4078	2.4525	0.9260	49	11	0.3937	0.4283	2.3351	0.9192	49
12	0.3778	0.4081	2.4504	0.9259	48	12	0.3939	0.4286	2.3332	0.9191	48
13	0.3781	0.4084	2.4484	0.9258	47	13	0.3942	0.4289	2.3313	0.9190	47
14	0.3784	0.4088	2.4464	0.9257	46	14	0.3945	0.4293	2.3294	0.9189	46
15	0.3786	0.4091	2.4443	0.9255	45	15	0.3947	0.4296	2.3276	0.9188	45
16	0.3789	0.4095	2.4423	0.9254	44	16	0.3950	0.4300	2.3257	0.9187	44
17	0.3792	0.4098	2.4403	0.9253	43	17	0.3953	0.4303	2.3238	0.9186	43
18	0.3795	0.4101	2.4383	0.9252	42	18	0.3955	0.4307	2.3220	0.9184	42
19	0.3797	0.4105	2.4362	0.9251	41	19	0.3958	0.4310	2.3201	0.9183	41
20	0.3800	0.4108	2.4342	0.9250	40	20	0.3961	0.4314	2.3183	0.9182	40
21	0.3803	0.4111	2.4322	0.9249	39	21	0.3963	0.4317	2.3164	0.9181	39
22	0.3805	0.4115	2.4302	0.9248	38	22	0.3966	0.4320	2.3146	0.9180	38
23	0.3808	0.4118	2.4282	0.9247	37	23	0.3969	0.4324	2.3127	0.9179	37
24	0.3811	0.4122	2.4262	0.9245	36	24	0.3971	0.4327	2.3109	0.9178	36
25	0.3813	0.4125	2.4242	0.9244	35	25	0.3974	0.4331	2.3090	0.9176	35
26	0.3816	0.4129	2.4222	0.9243	34	26	0.3977	0.4334	2.3072	0.9175	34
27	0.3819	0.4132	2.4202	0.9242	33	27	0.3979	0.4338	2.3053	0.9174	33
28	0.3821	0.4135	2.4182	0.9241	32	28	0.3982	0.4341	2.3035	0.9173	32
29	0.3824	0.4139	2.4162	0.9240	31	29	0.3985	0.4345	2.3017	0.9172	31
30	0.3827	0.4142	2.4142	0.9239	30	30	0.3987	0.4348	2.2998	0.9171	30
31	0.3830	0.4146	2.4122	0.9238	29	31	0.3990	0.4352	2.2980	0.9169	29
32	0.3832	0.4149	2.4102	0.9237	28	32	0.3993	0.4355	2.2962	0.9168	28
33	0.3835	0.4152	2.4083	0.9235	27	33	0.3995	0.4359	2.2944	0.9167	27
34	0.3838	0.4156	2.4063	0.9234	26	34	0.3998	0.4362	2.2925	0.9166	26
35	0.3840	0.4159	2.4043	0.9233	25	35	0.4001	0.4365	2.2907	0.9165	25
36	0.3843	0.4163	2.4023	0.9232	24	36	0.4003	0.4369	2.2889	0.9164	24
37	0.3846	0.4166	2.4004	0.9231	23	37	0.4006	0.4372	2.2871	0.9162	23
38	0.3848	0.4169	2.3984	0.9230	22	38	0.4009	0.4376	2.2853	0.9161	22
39	0.3851	0.4173	2.3964	0.9229	21	39	0.4011	0.4379	2.2835	0.9160	21
40	0.3854	0.4176	2.3945	0.9228	20	40	0.4014	0.4383	2.2817	0.9159	20
41	0.3856	0.4180	2.3925	0.9227	19	41	0.4017	0.4386	2.2799	0.9158	19
42	0.3859	0.4183	2.3906	0.9225	18	42	0.4019	0.4390	2.2781	0.9157	18
43	0.3862	0.4187	2.3886	0.9224	17	43	0.4022	0.4393	2.2763	0.9155	17
44	0.3864	0.4190	2.3867	0.9223	16	44	0.4025	0.4397	2.2745	0.9154	16
45	0.3867	0.4193	2.3847	0.9222	15	45	0.4027	0.4400	2.2727	0.9153	15
46	0.3870	0.4197	2.3828	0.9221	14	46	0.4030	0.4404	2.2709	0.9152	14
47	0.3872	0.4200	2.3808	0.9220	13	47	0.4033	0.4407	2.2691	0.9151	13
48	0.3875	0.4204	2.3789	0.9219	12	48	0.4035	0.4411	2.2673	0.9150	12
49	0.3878	0.4207	2.3770	0.9218	11	49	0.4038	0.4414	2.2655	0.9148	11
50	0.3881	0.4210	2.3750	0.9216	10	50	0.4041	0.4417	2.2637	0.9147	10
51	0.3883	0.4214	2.3731	0.9215	9	51	0.4043	0.4421	2.2620	0.9146	9
52	0.3886	0.4217	2.3712	0.9214	8	52	0.4046	0.4424	2.2602	0.9145	8
53	0.3889	0.4221	2.3693	0.9213	7	53	0.4049	0.4428	2.2584	0.9144	7
54	0.3891	0.4224	2.3673	0.9212	6	54	0.4051	0.4431	2.2566	0.9143	6
55	0.3894	0.4228	2.3654	0.9211	5	55	0.4054	0.4435	2.2549	0.9141	5
56	0.3897	0.4231	2.3635	0.9210	4	56	0.4057	0.4438	2.2531	0.9140	4
57	0.3899	0.4234	2.3616	0.9208	3	57	0.4059	0.4442	2.2513	0.9139	3
58	0.3902	0.4238	2.3597	0.9207	2	58	0.4062	0.4445	2.2496	0.9138	2
59	0.3905	0.4241	2.3578	0.9206	1	59	0.4065	0.4449	2.2478	0.9137	1
60	0.3907	0.4245	2.3559	0.9205	0	60	0.4067	0.4452	2.2460	0.9135	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
67°						66°					

20°						21°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.3420	0.3640	2.747$\bar{5}$	0.9397	60	0	0.3584	0.3839	2.6051	0.9336	60
1	0.3423	0.3643	2.745$\bar{0}$	0.9396	59	1	0.3586	0.3842	2.6028	0.933$\bar{5}$	59
2	0.3426	0.3646	2.7425	0.939$\bar{5}$	58	2	0.3589	0.3845	2.6006	0.9334	58
3	0.3428	0.364$\bar{0}$	2.7400	0.9394	57	3	0.3592	0.3849	2.5983	0.9333	57
4	0.3431	0.3653	2.7376	0.9393	56	4	0.359$\bar{5}$	0.3852	2.5961	0.9332	56
5	0.3434	0.3656	2.7351	0.9392	55	5	0.3597	0.3855	2.5938	0.9331	55
6	0.3437	0.3659	2.7326	0.9391	54	6	0.3600	0.3859	2.5916	0.9330	54
7	0.3439	0.3663	2.7302	0.9390	53	7	0.3603	0.3862	2.5893	0.9328	53
8	0.3442	0.3666	2.7277	0.9389	52	8	0.3605	0.3865	2.5871	0.9327	52
9	0.344$\bar{5}$	0.3669	2.7253	0.9388	51	9	0.3608	0.3869	2.5848	0.9326	51
10	0.3448	0.3673	2.7228	0.9387	50	10	0.3611	0.3872	2.5826	0.9325	50
11	0.3450	0.3676	2.7204	0.9386	49	11	0.3614	0.3875	2.5804	0.9324	49
12	0.3453	0.3679	2.7179	0.938$\bar{5}$	48	12	0.3616	0.3879	2.5782	0.9323	48
13	0.3456	0.3683	2.715$\bar{5}$	0.9384	47	13	0.3619	0.3882	2.5759	0.9322	47
14	0.3458	0.3686	2.7130	0.9383	46	14	0.3622	0.3885	2.5737	0.9321	46
15	0.3461	0.3689	2.7106	0.9382	45	15	0.3624	0.3889	2.571$\bar{5}$	0.9320	45
16	0.3464	0.3693	2.7082	0.9381	44	16	0.3627	0.3892	2.5693	0.9319	44
17	0.3467	0.3696	2.7058	0.9380	43	17	0.3630	0.3895	2.5671	0.9318	43
18	0.3469	0.3699	2.7034	0.9379	42	18	0.3633	0.3899	2.5649	0.9317	42
19	0.3472	0.3702	2.7009	0.9378	41	19	0.3635	0.3902	2.5627	0.9316	41
20	0.347$\bar{5}$	0.3706	2.6985	0.9377	40	20	0.3638	0.3906	2.560$\bar{5}$	0.931$\bar{5}$	40
21	0.3478	0.3709	2.6961	0.9376	39	21	0.3641	0.3909	2.5583	0.9314	39
22	0.3480	0.3712	2.6937	0.937$\bar{5}$	38	22	0.3643	0.3912	2.5561	0.9313	38
23	0.3483	0.3716	2.6913	0.9374	37	23	0.3646	0.3916	2.5539	0.9312	37
24	0.3486	0.3719	2.6889	0.9373	36	24	0.3649	0.3919	2.5517	0.9311	36
25	0.3488	0.3722	2.6865	0.9372	35	25	0.3651	0.3922	2.5495	0.9309	35
26	0.3491	0.3726	2.6841	0.9371	34	26	0.3654	0.3926	2.5473	0.9308	34
27	0.3494	0.3729	2.6818	0.9370	33	27	0.3657	0.3929	2.5452	0.9307	33
28	0.3497	0.3732	2.6794	0.9369	32	28	0.3660	0.3932	2.5430	0.9306	32
29	0.3499	0.3736	2.6770	0.9368	31	29	0.3662	0.3936	2.5408	0.930$\bar{5}$	31
30	0.3502	0.3739	2.6746	0.9367	30	30	0.3665	0.3939	2.5386	0.9304	30
31	0.350$\bar{5}$	0.3742	2.6723	0.9366	29	31	0.3668	0.3942	2.536$\bar{5}$	0.9303	29
32	0.3508	0.3745	2.6699	0.936$\bar{5}$	28	32	0.3670	0.3946	2.5343	0.9302	28
33	0.3510	0.3749	2.6675	0.9364	27	33	0.3673	0.3949	2.5322	0.9301	27
34	0.3513	0.3752	2.6652	0.9363	26	34	0.3676	0.3953	2.5300	0.9300	26
35	0.3516	0.3755	2.6628	0.9362	25	35	0.3679	0.3956	2.5279	0.9299	25
36	0.3518	0.3759	2.660$\bar{5}$	0.9361	24	36	0.3681	0.3959	2.5257	0.9298	24
37	0.3521	0.3762	2.6581	0.9360	23	37	0.3684	0.3963	2.5236	0.9297	23
38	0.3524	0.3765	2.6558	0.9359	22	38	0.3687	0.3966	2.5214	0.9296	22
39	0.3527	0.3769	2.6534	0.9358	21	39	0.3689	0.3969	2.5193	0.920$\bar{5}$	21
40	0.3529	0.3772	2.6511	0.9356	20	40	0.3692	0.3973	2.5172	0.9293	20
41	0.3532	0.3775	2.6488	0.9355	19	41	0.369$\bar{5}$	0.3976	3.5150	0.9292	19
42	0.353$\bar{5}$	0.3779	2.6464	0.9354	18	42	0.3697	0.3979	2.5129	0.9291	18
43	0.3537	0.3782	2.6441	0.9353	17	43	0.3700	0.3983	2.5108	0.9290	17
44	0.3540	0.3785	2.6418	0.9352	16	44	0.3703	0.3986	2.5086	0.9289	16
45	0.3543	0.3789	2.639$\bar{5}$	0.9351	15	45	0.3706	0.3990	2.5065	0.9288	15
46	0.3546	0.3792	2.6371	0.9350	14	46	0.3708	0.3993	2.5044	0.9287	14
47	0.3548	0.3795	2.6348	0.9349	13	47	0.3711	0.3996	2.5023	0.9286	13
48	0.3551	0.3799	2.6325	0.9348	12	48	0.3714	0.4000	2.5002	0.928$\bar{5}$	12
49	0.3554	0.3802	2.6302	0.9347	11	49	0.3716	0.4003	2.4981	0.9284	11
50	0.3557	0.3805	2.6279	0.9346	10	50	0.3719	0.4006	2.4960	0.9283	10
51	0.3559	0.3809	2.6256	0.9345	9	51	0.3722	0.4010	2.4939	0.9282	9
52	0.3562	0.3812	2.6233	0.9344	8	52	0.3724	0.4013	2.4918	0.9281	8
53	0.356$\bar{5}$	0.3815	2.6210	0.9343	7	53	0.3727	0.4017	2.4897	0.9279	7
54	0.3567	0.3819	2.6187	0.9342	6	54	0.3730	0.4020	2.4876	0.9278	6
55	0.3570	0.3822	2.616$\bar{5}$	0.9341	5	55	0.3733	0.4023	2.485$\bar{5}$	0.9277	5
56	0.3573	0.3825	2.6142	0.9340	4	56	0.3735	0.4027	2.4834	0.9276	4
57	0.3576	0.3829	2.6119	0.9339	3	57	0.3738	0.4030	2.4813	0.9275	3
58	0.3578	0.3832	2.6096	0.9338	2	58	0.3741	0.4033	2.4792	0.9274	2
59	0.3581	0.3835	2.6074	0.9337	1	59	0.3743	0.4037	2.4772	0.9273	1
60	0.3584	0.3839	2.6051	0.9336	0	60	0.3746	0.4040	2.4751	0.9272	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
	69°						68°				

22°						23°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.3746	0.4040	2.4751	0.9272	60	0	0.3907	0.4245	2.3559	0.9205	60
1	0.3749	0.4044	2.4730	0.9271	59	1	0.3910	0.4248	2.3539	0.9204	59
2	0.3751	0.4047	2.4709	0.9270	58	2	0.3913	0.4252	2.3520	0.9203	58
3	0.3754	0.4050	2.4689	0.9269	57	3	0.3915	0.4255	2.3501	0.9202	57
4	0.3757	0.4054	2.4668	0.9267	56	4	0.3918	0.4258	2.3483	0.9200	56
5	0.3760	0.4057	2.4648	0.9266	55	5	0.3921	0.4262	2.3464	0.9199	55
6	0.3762	0.4061	2.4627	0.9265	54	6	0.3923	0.4265	2.3445	0.9198	54
7	0.3765	0.4064	2.4606	0.9264	53	7	0.3926	0.4269	2.3426	0.9197	53
8	0.3768	0.4067	2.4586	0.9263	52	8	0.3929	0.4272	2.3407	0.9196	52
9	0.3770	0.4071	2.4566	0.9262	51	9	0.3931	0.4276	2.3388	0.9195	51
10	0.3773	0.4074	2.4545	0.9261	50	10	0.3934	0.4279	2.3369	0.9194	50
11	0.3776	0.4078	2.4525	0.9260	49	11	0.3937	0.4283	2.3351	0.9192	49
12	0.3778	0.4081	2.4504	0.9259	48	12	0.3939	0.4286	2.3332	0.9191	48
13	0.3781	0.4084	2.4484	0.9258	47	13	0.3942	0.4289	2.3313	0.9190	47
14	0.3784	0.4088	2.4464	0.9257	46	14	0.3945	0.4293	2.3294	0.9189	46
15	0.3786	0.4091	2.4443	0.9255	45	15	0.3947	0.4296	2.3276	0.9188	45
16	0.3789	0.4095	2.4423	0.9254	44	16	0.3950	0.4300	2.3257	0.9187	44
17	0.3792	0.4098	2.4403	0.9253	43	17	0.3953	0.4303	2.3238	0.9186	43
18	0.3795	0.4101	2.4383	0.9252	42	18	0.3955	0.4307	2.3220	0.9184	42
19	0.3797	0.4105	2.4362	0.9251	41	19	0.3958	0.4310	2.3201	0.9183	41
20	0.3800	0.4108	2.4342	0.9250	40	20	0.3961	0.4314	2.3183	0.9182	40
21	0.3803	0.4111	2.4322	0.9249	39	21	0.3963	0.4317	2.3164	0.9181	39
22	0.3805	0.4115	2.4302	0.9248	38	22	0.3966	0.4320	2.3146	0.9180	38
23	0.3808	0.4118	2.4282	0.9247	37	23	0.3969	0.4324	2.3127	0.9179	37
24	0.3811	0.4122	2.4262	0.9245	36	24	0.3971	0.4327	2.3109	0.9178	36
25	0.3813	0.4125	2.4242	0.9244	35	25	0.3974	0.4331	2.3090	0.9176	35
26	0.3816	0.4129	2.4222	0.9243	34	26	0.3977	0.4334	2.3072	0.9175	34
27	0.3819	0.4132	2.4202	0.9242	33	27	0.3979	0.4338	2.3053	0.9174	33
28	0.3821	0.4135	2.4182	0.9241	32	28	0.3982	0.4341	2.3035	0.9173	32
29	0.3824	0.4139	2.4162	0.9240	31	29	0.3985	0.4345	2.3017	0.9172	31
30	0.3827	0.4142	2.4142	0.9239	30	30	0.3987	0.4348	2.2998	0.9171	30
31	0.3830	0.4146	2.4122	0.9238	29	31	0.3990	0.4352	2.2980	0.9169	29
32	0.3832	0.4149	2.4102	0.9237	28	32	0.3993	0.4355	2.2962	0.9168	28
33	0.3835	0.4152	2.4083	0.9235	27	33	0.3995	0.4359	2.2944	0.9167	27
34	0.3838	0.4156	2.4063	0.9234	26	34	0.3998	0.4362	2.2925	0.9166	26
35	0.3840	0.4159	2.4043	0.9233	25	35	0.4001	0.4365	2.2907	0.9165	25
36	0.3843	0.4163	2.4023	0.9232	24	36	0.4003	0.4369	2.2889	0.9164	24
37	0.3846	0.4166	2.4004	0.9231	23	37	0.4006	0.4372	2.2871	0.9162	23
38	0.3848	0.4169	2.3984	0.9230	22	38	0.4009	0.4376	2.2853	0.9161	22
39	0.3851	0.4173	2.3964	0.9229	21	39	0.4011	0.4379	2.2835	0.9160	21
40	0.3854	0.4176	2.3945	0.9228	20	40	0.4014	0.4383	2.2817	0.9159	20
41	0.3856	0.4180	2.3925	0.9227	19	41	0.4017	0.4386	2.2799	0.9158	19
42	0.3859	0.4183	2.3906	0.9225	18	42	0.4019	0.4390	2.2781	0.9157	18
43	0.3862	0.4187	2.3886	0.9224	17	43	0.4022	0.4393	2.2763	0.9155	17
44	0.3864	0.4190	2.3867	0.9223	16	44	0.4025	0.4397	2.2745	0.9154	16
45	0.3867	0.4193	2.3847	0.9222	15	45	0.4027	0.4400	2.2727	0.9153	15
46	0.3870	0.4197	2.3828	0.9221	14	46	0.4030	0.4404	2.2709	0.9152	14
47	0.3872	0.4200	2.3808	0.9220	13	47	0.4033	0.4407	2.2691	0.9151	13
48	0.3875	0.4204	2.3789	0.9219	12	48	0.4035	0.4411	2.2673	0.9150	12
49	0.3878	0.4207	2.3770	0.9218	11	49	0.4038	0.4414	2.2655	0.9148	11
50	0.3881	0.4210	2.3750	0.9216	10	50	0.4041	0.4417	2.2637	0.9147	10
51	0.3883	0.4214	2.3731	0.9215	9	51	0.4043	0.4421	2.2620	0.9146	9
52	0.3886	0.4217	2.3712	0.9214	8	52	0.4046	0.4424	2.2602	0.9145	8
53	0.3889	0.4221	2.3693	0.9213	7	53	0.4049	0.4428	2.2584	0.9144	7
54	0.3891	0.4224	2.3673	0.9212	6	54	0.4051	0.4431	2.2566	0.9143	6
55	0.3894	0.4228	2.3654	0.9211	5	55	0.4054	0.4435	2.2549	0.9141	5
56	0.3897	0.4231	2.3635	0.9210	4	56	0.4057	0.4438	2.2531	0.9140	4
57	0.3899	0.4234	2.3616	0.9208	3	57	0.4059	0.4442	2.2513	0.9139	3
58	0.3902	0.4238	2.3597	0.9207	2	58	0.4062	0.4445	2.2496	0.9138	2
59	0.3905	0.4241	2.3578	0.9206	1	59	0.4065	0.4449	2.2478	0.9137	1
60	0.3907	0.4245	2.3559	0.9205	0	60	0.4067	0.4452	2.2460	0.9135	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
	67°						66°				

24°						25°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.4067	0.4452	2.2460	0.9135	60	0	0.4226	0.4663	2.1445	0.9063	60
1	0.4070	0.4456	2.2443	0.9134	59	1	0.4229	0.4667	2.1429	0.9062	59
2	0.4073	0.4459	2.2425	0.9133	58	2	0.4231	0.4670	2.1413	0.9061	58
3	0.4075	0.4463	2.2408	0.9132	57	3	0.4234	0.4674	2.1396	0.9059	57
4	0.4078	0.4466	2.2390	0.9131	56	4	0.4237	0.4677	2.1380	0.9058	56
5	0.4081	0.4470	2.2373	0.9130	55	5	0.4239	0.4681	2.1364	0.9057	55
6	0.4083	0.4473	2.2355	0.9128	54	6	0.4242	0.4684	2.1348	0.9056	54
7	0.4086	0.4477	2.2338	0.9127	53	7	0.424$\bar{5}$	0.4688	2.1332	0.9054	53
8	0.4089	0.4480	2.2320	0.9126	52	8	0.4247	0.4691	2.1315	0.9053	52
9	0.4091	0.4484	2.2303	0.912$\bar{5}$	51	9	0.42$\bar{5}$0	0.469$\bar{5}$	2.1299	0.9052	51
10	0.4094	0.4487	2.2286	0.9124	50	10	0.4253	0.4699	2.1283	0.9051	50
11	0.4097	0.4491	2.2268	0.9122	49	11	0.4255	0.4702	2.1267	0.90$\bar{5}$0	49
12	0.4099	0.4494	2.2251	0.9121	48	12	0.4258	0.4706	2.1251	0.9048	48
13	0.4102	0.4498	2.2234	0.9120	47	13	0.4260	0.4709	2.1235	0.9047	47
14	0.410$\bar{5}$	0.4501	2.2216	0.9119	46	14	0.4263	0.4713	2.1219	0.9046	46
15	0.4107	0.450$\bar{5}$	2.2199	0.9118	45	15	0.4266	0.4716	2.1203	0.904$\bar{5}$	45
16	0.4110	0.4508	2.2182	0.9116	44	16	0.4268	0.4720	2.1187	0.9043	44
17	0.4112	0.4512	2.216$\bar{5}$	0.9115	43	17	0.4271	0.4723	2.1171	0.9042	43
18	0.4115	0.4515	2.2148	0.9114	42	18	0.4274	0.4727	2.1155	0.9041	42
19	0.4118	0.4519	2.2130	0.9113	41	19	0.4276	0.4731	2.1139	0.9040	41
20	0.4120	0.4522	2.2113	0.9112	40	20	0.4279	0.4734	2.1123	0.9038	40
21	0.4123	0.4526	2.2096	0.9110	39	21	0.4281	0.4738	2.1107	0.9037	39
22	0.4126	0.4529	2.2079	0.9109	38	22	0.4284	0.4741	2.1092	0.9036	38
23	0.4128	0.4533	2.2062	0.9108	37	23	0.4287	0.474$\bar{5}$	2.1076	0.903$\bar{5}$	37
24	0.4131	0.4536	2.204$\bar{5}$	0.9107	36	24	0.4289	0.4748	2.1060	0.9033	36
25	0.4134	0.4540	2.2028	0.9106	35	25	0.4292	0.4752	2.1044	0.9032	35
26	0.4136	0.4543	2.2011	0.9104	34	26	0.429$\bar{5}$	0.4755	2.1028	0.9031	34
27	0.4139	0.4547	2.1994	0.9103	33	27	0.4297	0.4759	2.1013	0.9030	33
28	0.4142	0.4550	2.1977	0.9102	32	28	0.4300	0.4763	2.0997	0.9028	32
29	0.4144	0.4554	2.1960	0.9101	31	29	0.4302	0.4766	2.0981	0.9027	31
30	0.4147	0.4557	2.1943	0.9100	30	30	0.4305	0.4770	2.0965	0.9026	30
31	0.415$\bar{0}$	0.4561	2.1926	0.9098	29	31	0.4308	0.4773	2.09$\bar{5}$0	0.902$\bar{5}$	29
32	0.4152	0.4564	2.1909	0.9097	28	32	0.4310	0.4777	2.0934	0.9023	28
33	0.415$\bar{5}$	0.4568	2.1892	0.9096	27	33	0.4313	0.4780	2.0918	0.9022	27
34	0.4158	0.4571	2.1876	0.909$\bar{5}$	26	34	0.4316	0.4784	2.0903	0.9021	26
35	0.4160	0.457$\bar{5}$	2.1859	0.9094	25	35	0.4318	0.4788	2.0887	0.9020	25
36	0.4163	0.4578	2.1842	0.9092	24	36	0.4321	0.4791	2.0872	0.9018	24
37	0.4165	0.4582	2.1825	0.9091	23	37	0.4323	0.479$\bar{5}$	2.0859	0.9017	23
38	0.4168	0.4585	2.1808	0.9090	22	38	0.4326	0.4798	2.0840	0.9016	22
39	0.4171	0.4589	2.1792	0.9089	21	39	0.4329	0.4802	2.082$\bar{5}$	0.901$\bar{5}$	21
40	0.4173	0.4592	2.177$\bar{5}$	0.9088	20	40	0.4331	0.4806	2.0809	0.9013	20
41	0.4176	0.4596	2.1758	0.9086	19	41	0.4334	0.4809	2.0794	0.9012	19
42	0.4179	0.4599	2.1742	0.9085	18	42	0.4337	0.4813	2.0778	0.9011	18
43	0.4181	0.4603	2.172$\bar{5}$	0.9084	17	43	0.4339	0.4816	2.0763	0.9010	17
44	0.4184	0.4607	2.1708	0.9083	16	44	0.4342	0.4820	2.0748	0.9008	16
45	0.4187	0.4610	2.1692	0.9081	15	45	0.4344	0.4823	2.0732	0.9007	15
46	0.4189	0.4614	2.1675	0.9080	14	46	0.4347	0.4827	2.0717	0.9006	14
47	0.4192	0.4617	2.1659	0.9079	13	47	0.435$\bar{0}$	0.4831	2.0701	0.9004	13
48	0.419$\bar{5}$	0.4621	2.1642	0.9078	12	48	0.4352	0.4834	2.0686	0.9003	12
49	0.4197	0.4624	2.1625	0.9077	11	49	0.435$\bar{5}$	0.4838	2.0671	0.9002	11
50	0.4200	0.4628	2.1609	0.9075	10	50	0.4358	0.4841	2.0655	0.9001	10
51	0.4202	0.4631	2.1592	0.9074	9	51	0.4360	0.484$\bar{5}$	2.0640	0.8999	9
52	0.4205	0.463$\bar{5}$	2.1576	0.9073	8	52	0.4363	0.4849	2.062$\bar{5}$	0.8998	8
53	0.4208	0.4638	2.1560	0.9072	7	53	0.4365	0.4852	2.0609	0.8997	7
54	0.4210	0.4642	2.1543	0.9070	6	54	0.4368	0.4856	2.0594	0.8996	6
55	0.4213	0.4645	2.1527	0.9069	5	55	0.4371	0.4859	2.0579	0.8994	5
56	0.4216	0.4649	2.1510	0.9068	4	56	0.4373	0.4863	2.0564	0.8993	4
57	0.4218	0.4652	2.1494	0.9067	3	57	0.4376	0.4867	2.0549	0.8992	3
58	0.4221	0.4656	2.1478	0.9066	2	58	0.4378	0.4870	2.0533	0.8990	2
59	0.4224	0.4660	2.1461	0.9064	1	59	0.4381	0.4874	2.0518	0.8989	1
60	0.4226	0.4663	2.1445	0.9063	0	60	0.4384	0.4877	2.0503	0.8988	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
65°						64°					

26°						27°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.4384	0.4877	2.0503	0.8988	60	0	0.4540	0.5095	1.9626	0.8910	60
1	0.4386	0.4881	2.0488	0.8987	59	1	0.4542	0.5099	1.9612	0.8909	59
2	0.4389	0.4885	2.0473	0.8985	58	2	0.4545	0.5103	1.9598	0.8907	58
3	0.4392	0.4888	2.0458	0.8984	57	3	0.4548	0.5106	1.9584	0.8906	57
4	0.4394	0.4892	2.0443	0.8983	56	4	0.4550	0.5110	1.9570	0.8905	56
5	0.4397	0.4895	2.0428	0.8982	55	5	0.4553	0.5114	1.9556	0.8903	55
6	0.4399	0.4899	2.0413	0.8980	54	6	0.4555	0.5117	1.9542	0.8902	54
7	0.4402	0.4903	2.0398	0.8979	53	7	0.4558	0.5121	1.9528	0.8901	53
8	0.4405	0.4906	2.0383	0.8978	52	8	0.4561	0.5125	1.9514	0.8899	52
9	0.4407	0.4910	2.0368	0.8976	51	9	0.4563	0.5128	1.9500	0.8898	51
10	0.4410	0.4913	2.0353	0.8975	50	10	0.4566	0.5132	1.9486	0.8897	50
11	0.4412	0.4917	2.0338	0.8974	49	11	0.4568	0.5136	1.9472	0.8895	49
12	0.4415	0.4921	2.0323	0.8973	48	12	0.4571	0.5139	1.9458	0.8894	48
13	0.4418	0.4924	2.0308	0.8971	47	13	0.4574	0.5143	1.9444	0.8893	47
14	0.4420	0.4928	2.0293	0.8970	46	14	0.4576	0.5147	1.9430	0.8892	46
15	0.4423	0.4931	2.0278	0.8969	45	15	0.4579	0.5150	1.9416	0.8890	45
16	0.4425	0.4935	2.0263	0.8967	44	16	0.4581	0.5154	1.9402	0.8889	44
17	0.4428	0.4939	2.0248	0.8966	43	17	0.4584	0.5158	1.9388	0.8888	43
18	0.4431	0.4942	2.0233	0.8965	42	18	0.4586	0.5161	1.9375	0.8886	42
19	0.4433	0.4946	2.0219	0.8964	41	19	0.4589	0.5165	1.9361	0.8885	41
20	0.4436	0.4950	2.0204	0.8962	40	20	0.4592	0.5169	1.9347	0.8884	40
21	0.4439	0.4953	2.0189	0.8961	39	21	0.4594	0.5172	1.9333	0.8882	39
22	0.4441	0.4957	2.0174	0.8960	38	22	0.4597	0.5176	1.9319	0.8881	38
23	0.4444	0.4960	2.0160	0.8958	37	23	0.4599	0.5180	1.9306	0.8879	37
24	0.4446	0.4964	2.0145	0.8957	36	24	0.4602	0.5184	1.9292	0.8878	36
25	0.4449	0.4968	2.0130	0.8956	35	25	0.4605	0.5187	1.9278	0.8877	35
26	0.4452	0.4971	2.0115	0.8955	34	26	0.4607	0.5191	1.9265	0.8875	34
27	0.4454	0.4975	2.0101	0.8953	33	27	0.4610	0.5195	1.9251	0.8874	33
28	0.4457	0.4979	2.0086	0.8952	32	28	0.4612	0.5198	1.9237	0.8873	32
29	0.4459	0.4982	2.0072	0.8951	31	29	0.4615	0.5202	1.9223	0.8871	31
30	0.4462	0.4986	2.0057	0.8949	30	30	0.4617	0.5206	1.9210	0.8870	30
31	0.4465	0.4989	2.0042	0.8948	29	31	0.4620	0.5209	1.9196	0.8869	29
32	0.4467	0.4993	2.0028	0.8947	28	32	0.4623	0.5213	1.9183	0.8867	28
33	0.4470	0.4997	2.0013	0.8945	27	33	0.4625	0.5217	1.9169	0.8866	27
34	0.4472	0.5000	1.9999	0.8944	26	34	0.4628	0.5220	1.9155	0.8865	26
35	0.4475	0.5004	1.9984	0.8943	25	35	0.4630	0.5224	1.9142	0.8863	25
36	0.4478	0.5008	1.9970	0.8942	24	36	0.4633	0.5228	1.9128	0.8862	24
37	0.4480	0.5011	1.9955	0.8940	23	37	0.4636	0.5232	1.9115	0.8861	23
38	0.4483	0.5015	1.9941	0.8939	22	38	0.4638	0.5235	1.9101	0.8859	22
39	0.4485	0.5019	1.9926	0.8938	21	39	0.4641	0.5239	1.9088	0.8858	21
40	0.4488	0.5022	1.9912	0.8936	20	40	0.4643	0.5243	1.9074	0.8857	20
41	0.4491	0.5026	1.9897	0.8935	19	41	0.4646	0.5246	1.9061	0.8855	19
42	0.4493	0.5029	1.9883	0.8934	18	42	0.4648	0.5250	1.9047	0.8854	18
43	0.4496	0.5033	1.9868	0.8932	17	43	0.4651	0.5254	1.9034	0.8853	17
44	0.4498	0.5037	1.9854	0.8931	16	44	0.4654	0.5258	1.9020	0.8851	16
45	0.4501	0.5040	1.9840	0.8930	15	45	0.4656	0.5261	1.9007	0.8850	15
46	0.4504	0.5044	1.9825	0.8928	14	46	0.4659	0.5265	1.8993	0.8849	14
47	0.4506	0.5048	1.9811	0.8927	13	47	0.4661	0.5269	1.8980	0.8847	13
48	0.4509	0.5051	1.9797	0.8926	12	48	0.4664	0.5272	1.8967	0.8846	12
49	0.4511	0.5055	1.9782	0.8925	11	49	0.4666	0.5276	1.8953	0.8844	11
50	0.4514	0.5059	1.9768	0.8923	10	50	0.4669	0.5280	1.8940	0.8843	10
51	0.4517	0.5062	1.9754	0.8922	9	51	0.4672	0.5284	1.8927	0.8842	9
52	0.4519	0.5066	1.9740	0.8921	8	52	0.4674	0.5287	1.8913	0.8840	8
53	0.4522	0.5070	1.9725	0.8919	7	53	0.4677	0.5291	1.8900	0.8839	7
54	0.4524	0.5073	1.9711	0.8918	6	54	0.4679	0.5295	1.8887	0.8838	6
55	0.4527	0.5077	1.9697	0.8917	5	55	0.4682	0.5298	1.8873	0.8836	5
56	0.4530	0.5081	1.9683	0.8915	4	56	0.4684	0.5302	1.8860	0.8835	4
57	0.4532	0.5084	1.9669	0.8914	3	57	0.4687	0.5306	1.8847	0.8834	3
58	0.4535	0.5088	1.9654	0.8913	2	58	0.4690	0.5310	1.8834	0.8832	2
59	0.4537	0.5092	1.9640	0.8911	1	59	0.4692	0.5313	1.8820	0.8831	1
60	0.4540	0.5095	1.9626	0.8910	0	60	0.4695	0.5317	1.8807	0.8829	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
63°						62°					

28°						29°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.4695	0.5317	1.8807	0.8829	60	0	0.4848	0.5543	1.8040	0.8746	60
1	0.4697	0.5321	1.8794	0.8828	59	1	0.4851	0.5547	1.8028	0.8745	59
2	0.4700	0.5325	1.8781	0.8827	58	2	0.4853	0.5551	1.8016	0.8743	58
3	0.4702	0.5328	1.8768	0.8825	57	3	0.4856	0.5555	1.8003	0.8742	57
4	0.4705	0.5332	1.8755	0.8824	56	4	0.4858	0.5558	1.7991	0.8741	56
5	0.4708	0.5336	1.8741	0.8823	55	5	0.4861	0.5562	1.7979	0.8739	55
6	0.4710	0.5340	1.8728	0.8821	54	6	0.4863	0.5566	1.7966	0.8738	54
7	0.4713	0.5343	1.8715	0.8820	53	7	0.4866	0.5570	1.7954	0.8736	53
8	0.4715	0.5347	1.8702	0.8819	52	8	0.4868	0.5574	1.7942	0.8735	52
9	0.4718	0.5351	1.8689	0.8817	51	9	0.4871	0.5577	1.7930	0.8733	51
10	0.4720	0.5354	1.8676	0.8816	50	10	0.4874	0.5581	1.7917	0.8732	50
11	0.4723	0.5358	1.8663	0.8814	49	11	0.4876	0.5585	1.7905	0.8731	49
12	0.4726	0.5362	1.8650	0.8813	48	12	0.4879	0.5589	1.7893	0.8729	48
13	0.4728	0.5366	1.8637	0.8812	47	13	0.4881	0.5593	1.7881	0.8728	47
14	0.4731	0.5369	1.8624	0.8810	46	14	0.4884	0.5596	1.7868	0.8726	46
15	0.4733	0.5373	1.8611	0.8809	45	15	0.4886	0.5600	1.7856	0.8725	45
16	0.4736	0.5377	1.8598	0.8808	44	16	0.4889	0.5604	1.7844	0.8724	44
17	0.4738	0.5381	1.8585	0.8806	43	17	0.4891	0.5608	1.7832	0.8722	43
18	0.4741	0.5384	1.8572	0.8805	42	18	0.4894	0.5612	1.7820	0.8721	42
19	0.4743	0.5388	1.8559	0.8803	41	19	0.4896	0.5616	1.7808	0.8719	41
20	0.4746	0.5392	1.8546	0.8802	40	20	0.4899	0.5619	1.7796	0.8718	40
21	0.4749	0.5396	1.8533	0.8801	39	21	0.4901	0.5623	1.7783	0.8716	39
22	0.4751	0.5399	1.8520	0.8799	38	22	0.4904	0.5627	1.7771	0.8715	38
23	0.4754	0.5403	1.8507	0.8798	37	23	0.4907	0.5631	1.7759	0.8714	37
24	0.4756	0.5407	1.8495	0.8796	36	24	0.4909	0.5635	1.7747	0.8712	36
25	0.4759	0.5411	1.8482	0.8795	35	25	0.4912	0.5639	1.7735	0.8711	35
26	0.4761	0.5415	1.8469	0.8794	34	26	0.4914	0.5642	1.7723	0.8709	34
27	0.4764	0.5418	1.8456	0.8792	33	27	0.4917	0.5646	1.7711	0.8708	33
28	0.4766	0.5422	1.8443	0.8791	32	28	0.4919	0.5650	1.7699	0.8706	32
29	0.4769	0.5426	1.8430	0.8790	31	29	0.4922	0.5654	1.7687	0.8705	31
30	0.4772	0.5430	1.8418	0.8788	30	30	0.4924	0.5658	1.7675	0.8704	30
31	0.4774	0.5433	1.8405	0.8787	29	31	0.4927	0.5662	1.7663	0.8702	29
32	0.4777	0.5437	1.8392	0.8785	28	32	0.4929	0.5665	1.7651	0.8701	28
33	0.4779	0.5441	1.8379	0.8784	27	33	0.4932	0.5669	1.7639	0.8699	27
34	0.4782	0.5445	1.8367	0.8783	26	34	0.4934	0.5673	1.7627	0.8698	26
35	0.4784	0.5448	1.8354	0.8781	25	35	0.4937	0.5677	1.7615	0.8696	25
36	0.4787	0.5452	1.8341	0.8780	24	36	0.4939	0.5681	1.7603	0.8695	24
37	0.4789	0.5456	1.8329	0.8778	23	37	0.4942	0.5685	1.7591	0.8694	23
38	0.4792	0.5460	1.8316	0.8777	22	38	0.4944	0.5688	1.7579	0.8692	22
39	0.4795	0.5464	1.8303	0.8776	21	39	0.4947	0.5692	1.7567	0.8691	21
40	0.4797	0.5467	1.8291	0.8774	20	40	0.4950	0.5696	1.7556	0.8689	20
41	0.4800	0.5471	1.8278	0.8773	19	41	0.4952	0.5700	1.7544	0.8688	19
42	0.4802	0.5475	1.8265	0.8771	18	42	0.4955	0.5704	1.7532	0.8686	18
43	0.4805	0.5479	1.8253	0.8770	17	43	0.4957	0.5708	1.7520	0.8685	17
44	0.4807	0.5482	1.8240	0.8769	16	44	0.4960	0.5712	1.7508	0.8683	16
45	0.4810	0.5486	1.8228	0.8767	15	45	0.4962	0.5715	1.7496	0.8682	15
46	0.4812	0.5490	1.8215	0.8766	14	46	0.4965	0.5719	1.7485	0.8681	14
47	0.4815	0.5494	1.8202	0.8764	13	47	0.4967	0.5723	1.7473	0.8679	13
48	0.4818	0.5498	1.8190	0.8763	12	48	0.4970	0.5727	1.7461	0.8678	12
49	0.4820	0.5501	1.8177	0.8762	11	49	0.4972	0.5731	1.7449	0.8676	11
50	0.4823	0.5505	1.8165	0.8760	10	50	0.4975	0.5735	1.7437	0.8675	10
51	0.4825	0.5509	1.8152	0.8759	9	51	0.4977	0.5739	1.7426	0.8673	9
52	0.4828	0.5513	1.8140	0.8757	8	52	0.4980	0.5743	1.7414	0.8672	8
53	0.4830	0.5517	1.8127	0.8756	7	53	0.4982	0.5746	1.7402	0.8670	7
54	0.4833	0.5520	1.8115	0.8755	6	54	0.4985	0.5750	1.7391	0.8669	6
55	0.4835	0.5524	1.8103	0.8753	5	55	0.4987	0.5754	1.7379	0.8668	5
56	0.4838	0.5528	1.8090	0.8752	4	56	0.4990	0.5758	1.7367	0.8666	4
57	0.4840	0.5532	1.8078	0.8750	3	57	0.4992	0.5762	1.7355	0.8665	3
58	0.4843	0.5535	1.8065	0.8749	2	58	0.4995	0.5766	1.7344	0.8663	2
59	0.4846	0.5539	1.8053	0.8748	1	59	0.4997	0.5770	1.7332	0.8662	1
60	0.4848	0.5543	1.8040	0.8746	0	60	0.5000	0.5774	1.7321	0.8660	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
61°						60°					

30°						31°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.5000	0.5774	1.7321	0.8660	60	0	0.5150	0.6009	1.6643	0.8572	60
1	0.5003	0.5777	1.7309	0.8659	59	1	0.5153	0.6013	1.6632	0.8570	59
2	0.5005	0.5781	1.7297	0.8657	58	2	0.5155	0.6017	1.6621	0.8569	58
3	0.5008	0.5785	1.7286	0.8656	57	3	0.5158	0.6020	1.6610	0.8567	57
4	0.5010	0.5789	1.7274	0.8654	56	4	0.5160	0.6024	1.6599	0.8566	56
5	0.5013	0.5793	1.7262	0.8653	55	5	0.5163	0.6028	1.6588	0.8564	55
6	0.5015	0.5797	1.7251	0.8652	54	6	0.5165	0.6032	1.6577	0.8563	54
7	0.5018	0.5801	1.7239	0.8650	53	7	0.5168	0.6036	1.6566	0.8561	53
8	0.5020	0.5805	1.7228	0.8649	52	8	0.5170	0.6040	1.6555	0.8560	52
9	0.5023	0.5808	1.7216	0.8647	51	9	0.5173	0.6044	1.6545	0.8558	51
10	0.5025	0.5812	1.7205	0.8646	50	10	0.5175	0.6048	1.6534	0.8557	50
11	0.5028	0.5816	1.7193	0.8644	49	11	0.5178	0.6052	1.6523	0.8555	49
12	0.5030	0.5820	1.7182	0.8643	48	12	0.5180	0.6056	1.6512	0.8554	48
13	0.5033	0.5824	1.7170	0.8641	47	13	0.5183	0.6060	1.6501	0.8552	47
14	0.5035	0.5828	1.7159	0.8640	46	14	0.5185	0.6064	1.6490	0.8551	46
15	0.5038	0.5832	1.7147	0.8638	45	15	0.5188	0.6068	1.6479	0.8549	45
16	0.5040	0.5836	1.7136	0.8637	44	16	0.5190	0.6072	1.6469	0.8548	44
17	0.5043	0.5840	1.7124	0.8635	43	17	0.5193	0.6076	1.6458	0.8546	43
18	0.5045	0.5844	1.7113	0.8634	42	18	0.5195	0.6080	1.6447	0.8545	42
19	0.5048	0.5847	1.7102	0.8632	41	19	0.5198	0.6084	1.6436	0.8543	41
20	0.5050	0.5851	1.7090	0.8631	40	20	0.5200	0.6088	1.6426	0.8542	40
21	0.5053	0.5855	1.7079	0.8630	39	21	0.5203	0.6092	1.6415	0.8540	39
22	0.5055	0.5859	1.7067	0.8628	38	22	0.5205	0.6096	1.6404	0.8539	38
23	0.5058	0.5863	1.7056	0.8627	37	23	0.5208	0.6100	1.6393	0.8537	37
24	0.5060	0.5867	1.7045	0.8625	36	24	0.5210	0.6104	1.6383	0.8536	36
25	0.5063	0.5871	1.7033	0.8624	35	25	0.5213	0.6108	1.6372	0.8534	35
26	0.5065	0.5875	1.7022	0.8622	34	26	0.5215	0.6112	1.6361	0.8532	34
27	0.5068	0.5879	1.7011	0.8621	33	27	0.5218	0.6116	1.6351	0.8531	33
28	0.5070	0.5883	1.6999	0.8619	32	28	0.5220	0.6120	1.6340	0.8529	32
29	0.5073	0.5887	1.6988	0.8618	31	29	0.5223	0.6124	1.6329	0.8528	31
30	0.5075	0.5890	1.6977	0.8616	30	30	0.5225	0.6128	1.6319	0.8526	30
31	0.5078	0.5894	1.6965	0.8615	29	31	0.5227	0.6132	1.6308	0.8525	29
32	0.5080	0.5898	1.6954	0.8613	28	32	0.5230	0.6136	1.6297	0.8523	28
33	0.5083	0.5902	1.6943	0.8612	27	33	0.5232	0.6140	1.6287	0.8522	27
34	0.5085	0.5906	1.6932	0.8610	26	34	0.5235	0.6144	1.6276	0.8520	26
35	0.5088	0.5910	1.6920	0.8609	25	35	0.5237	0.6148	1.6265	0.8519	25
36	0.5090	0.5914	1.6909	0.8607	24	36	0.5240	0.6152	1.6255	0.8517	24
37	0.5093	0.5918	1.6898	0.8606	23	37	0.5242	0.6156	1.6244	0.8516	23
38	0.5095	0.5922	1.6887	0.8604	22	38	0.5245	0.6160	1.6234	0.8514	22
39	0.5098	0.5926	1.6875	0.8603	21	39	0.5247	0.6164	1.6223	0.8513	21
40	0.5100	0.5930	1.6864	0.8601	20	40	0.5250	0.6168	1.6212	0.8511	20
41	0.5103	0.5934	1.6853	0.8600	19	41	0.5252	0.6172	1.6202	0.8510	19
42	0.5105	0.5938	1.6842	0.8599	18	42	0.5255	0.6176	1.6191	0.8508	18
43	0.5108	0.5942	1.6831	0.8597	17	43	0.5257	0.6180	1.6181	0.8507	17
44	0.5110	0.5945	1.6820	0.8596	16	44	0.5260	0.6184	1.6170	0.8505	16
45	0.5113	0.5949	1.6808	0.8594	15	45	0.5262	0.6188	1.6160	0.8504	15
46	0.5115	0.5953	1.6797	0.8593	14	46	0.5265	0.6192	1.6149	0.8502	14
47	0.5118	0.5957	1.6786	0.8591	13	47	0.5267	0.6196	1.6139	0.8500	13
48	0.5120	0.5961	1.6775	0.8590	12	48	0.5270	0.6200	1.6128	0.8499	12
49	0.5123	0.5965	1.6764	0.8588	11	49	0.5272	0.6204	1.6118	0.8497	11
50	0.5125	0.5969	1.6753	0.8587	10	50	0.5275	0.6208	1.6107	0.8496	10
51	0.5128	0.5973	1.6742	0.8585	9	51	0.5277	0.6212	1.6097	0.8494	9
52	0.5130	0.5977	1.6731	0.8584	8	52	0.5279	0.6216	1.6087	0.8493	8
53	0.5133	0.5981	1.6720	0.8582	7	53	0.5282	0.6220	1.6076	0.8491	7
54	0.5135	0.5985	1.6709	0.8581	6	54	0.5284	0.6224	1.6066	0.8490	6
55	0.5138	0.5989	1.6698	0.8579	5	55	0.5287	0.6228	1.6055	0.8488	5
56	0.5140	0.5993	1.6687	0.8578	4	56	0.5289	0.6233	1.6045	0.8487	4
57	0.5143	0.5997	1.6676	0.8576	3	57	0.5292	0.6237	1.6034	0.8485	3
58	0.5145	0.6001	1.6665	0.8575	2	58	0.5294	0.6241	1.6024	0.8484	2
59	0.5148	0.6005	1.6654	0.8573	1	59	0.5297	0.6245	1.6014	0.8482	1
60	0.5150	0.6009	1.6643	0.8572	0	60	0.5299	0.6249	1.6003	0.8480	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
59°						58°					

32°						33°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.5299	0.6249	1.6003	0.8480	60	0	0.5446	0.6494	1.5399	0.8387	60
1	0.5302	0.6253	1.5993	0.8479	59	1	0.5449	0.6498	1.5389	0.8385	59
2	0.5304	0.6257	1.5983	0.8477	58	2	0.5451	0.6502	1.5379	0.8384	58
3	0.5307	0.6261	1.5972	0.8476	57	3	0.5454	0.6506	1.5369	0.8382	57
4	0.5309	0.6265	1.5962	0.8474	56	4	0.5456	0.6511	1.5359	0.8380	56
5	0.5312	0.6269	1.5952	0.8473	55	5	0.5459	0.6515	1.5350	0.8379	55
6	0.5314	0.6273	1.5941	0.8471	54	6	0.5461	0.6519	1.5340	0.8377	54
7	0.5316	0.6277	1.5931	0.8470	53	7	0.5463	0.6523	1.5330	0.8376	53
8	0.5319	0.6281	1.5921	0.8468	52	8	0.5466	0.6527	1.5320	0.8374	52
9	0.5321	0.6285	1.5911	0.8467	51	9	0.5468	0.6531	1.5311	0.8372	51
10	0.5324	0.6289	1.5900	0.8465	50	10	0.5471	0.6536	1.5301	0.8371	50
11	0.5326	0.6293	1.5890	0.8463	49	11	0.5473	0.6540	1.5291	0.8369	49
12	0.5329	0.6297	1.5880	0.8462	48	12	0.5476	0.6544	1.5282	0.8368	48
13	0.5331	0.6301	1.5869	0.8460	47	13	0.5478	0.6548	1.5272	0.8366	47
14	0.5334	0.6305	1.5859	0.8459	46	14	0.5480	0.6552	1.5262	0.8364	46
15	0.5336	0.6310	1.5849	0.8457	45	15	0.5483	0.6556	1.5253	0.8363	45
16	0.5339	0.6314	1.5839	0.8456	44	16	0.5485	0.6560	1.5243	0.8361	44
17	0.5341	0.6318	1.5829	0.8454	43	17	0.5488	0.6565	1.5233	0.8360	43
18	0.5344	0.6322	1.5818	0.8453	42	18	0.5490	0.6569	1.5224	0.8358	42
19	0.5346	0.6326	1.5808	0.8451	41	19	0.5493	0.6573	1.5214	0.8356	41
20	0.5348	0.6330	1.5798	0.8450	40	20	0.5495	0.6577	1.5204	0.8355	40
21	0.5351	0.6334	1.5788	0.8448	39	21	0.5498	0.6581	1.5195	0.8353	39
22	0.5353	0.6338	1.5778	0.8446	38	22	0.5500	0.6585	1.5185	0.8352	38
23	0.5356	0.6342	1.5768	0.8445	37	23	0.5502	0.6590	1.5175	0.8350	37
24	0.5358	0.6346	1.5757	0.8443	36	24	0.5505	0.6594	1.5166	0.8348	36
25	0.5361	0.6350	1.5747	0.8442	35	25	0.5507	0.6598	1.5156	0.8347	35
26	0.5363	0.6354	1.5737	0.8440	34	26	0.5510	0.6602	1.5147	0.8345	34
27	0.5366	0.6358	1.5727	0.8439	33	27	0.5512	0.6606	1.5137	0.8344	33
28	0.5368	0.6363	1.5717	0.8437	32	28	0.5515	0.6610	1.5127	0.8342	32
29	0.5371	0.6367	1.5707	0.8435	31	29	0.5517	0.6615	1.5118	0.8340	31
30	0.5373	0.6371	1.5697	0.8434	30	30	0.5519	0.6619	1.5108	0.8339	30
31	0.5375	0.6375	1.5687	0.8432	29	31	0.5522	0.6623	1.5099	0.8337	29
32	0.5378	0.6379	1.5677	0.8431	28	32	0.5524	0.6627	1.5089	0.8336	28
33	0.5380	0.6383	1.5667	0.8429	27	33	0.5527	0.6631	1.5080	0.8334	27
34	0.5383	0.6387	1.5657	0.8428	26	34	0.5529	0.6636	1.5070	0.8332	26
35	0.5385	0.6391	1.5647	0.8426	25	35	0.5531	0.6640	1.5061	0.8331	25
36	0.5388	0.6395	1.5637	0.8425	24	36	0.5534	0.6644	1.5051	0.8329	24
37	0.5390	0.6399	1.5627	0.8423	23	37	0.5536	0.6648	1.5042	0.8328	23
38	0.5393	0.6403	1.5617	0.8421	22	38	0.5539	0.6652	1.5032	0.8326	22
39	0.5395	0.6408	1.5607	0.8420	21	39	0.5541	0.6657	1.5023	0.8324	21
40	0.5398	0.6412	1.5597	0.8418	20	40	0.5544	0.6661	1.5013	0.8323	20
41	0.5400	0.6416	1.5587	0.8417	19	41	0.5546	0.6665	1.5004	0.8321	19
42	0.5402	0.6420	1.5577	0.8415	18	42	0.5548	0.6669	1.4994	0.8320	18
43	0.5405	0.6424	1.5567	0.8414	17	43	0.5551	0.6673	1.4985	0.8318	17
44	0.5407	0.6428	1.5557	0.8412	16	44	0.5553	0.6678	1.4975	0.8316	16
45	0.5410	0.6432	1.5547	0.8410	15	45	0.5556	0.6682	1.4966	0.8315	15
46	0.5412	0.6436	1.5537	0.8409	14	46	0.5558	0.6686	1.4957	0.8313	14
47	0.5415	0.6440	1.5527	0.8407	13	47	0.5561	0.6690	1.4947	0.8311	13
48	0.5417	0.6445	1.5517	0.8406	12	48	0.5563	0.6694	1.4938	0.8310	12
49	0.5420	0.6449	1.5507	0.8404	11	49	0.5565	0.6699	1.4928	0.8308	11
50	0.5422	0.6453	1.5497	0.8403	10	50	0.5568	0.6703	1.4919	0.8307	10
51	0.5424	0.6457	1.5487	0.8401	9	51	0.5570	0.6707	1.4910	0.8305	9
52	0.5427	0.6461	1.5477	0.8399	8	52	0.5573	0.6711	1.4900	0.8303	8
53	0.5429	0.6465	1.5468	0.8398	7	53	0.5575	0.6715	1.4891	0.8302	7
54	0.5432	0.6469	1.5458	0.8396	6	54	0.5577	0.6720	1.4882	0.8300	6
55	0.5434	0.6473	1.5448	0.8395	5	55	0.5580	0.6724	1.4872	0.8298	5
56	0.5437	0.6478	1.5438	0.8393	4	56	0.5582	0.6728	1.4863	0.8297	4
57	0.5439	0.6482	1.5428	0.8391	3	57	0.5585	0.6732	1.4854	0.8295	3
58	0.5442	0.6486	1.5418	0.8390	2	58	0.5587	0.6737	1.4844	0.8294	2
59	0.5444	0.6490	1.5408	0.8388	1	59	0.5590	0.6741	1.4835	0.8292	1
60	0.5446	0.6494	1.5399	0.8387	0	60	0.5592	0.6745	1.4826	0.8290	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
57°						56°					

34°						35°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.5592	0.6745	1.4826	0.8290	60	0	0.5736	0.7002	1.4281	0.8192	60
1	0.5594	0.6749	1.4816	0.8289	59	1	0.5738	0.7006	1.4273	0.8190	59
2	0.5597	0.6754	1.4807	0.8287	58	2	0.5741	0.7011	1.4264	0.8188	58
3	0.5599	0.6758	1.4798	0.8285	57	3	0.5743	0.7015	1.4255	0.8187	57
4	0.5602	0.6762	1.4788	0.8284	56	4	0.5745	0.7019	1.4246	0.8185	56
5	0.5604	0.6766	1.4779	0.8282	55	5	0.5748	0.7024	1.4237	0.8183	55
6	0.5606	0.6771	1.4770	0.8281	54	6	0.5750	0.7028	1.4229	0.8181	54
7	0.5609	0.6775	1.4761	0.8279	53	7	0.5752	0.7032	1.4220	0.8180	53
8	0.5611	0.6779	1.4751	0.8277	52	8	0.5755	0.7037	1.4211	0.8178	52
9	0.5614	0.6783	1.4742	0.8276	51	9	0.5757	0.7041	1.4202	0.8176	51
10	0.5616	0.6787	1.4733	0.8274	50	10	0.5760	0.7046	1.4193	0.8175	50
11	0.5618	0.6792	1.4724	0.8272	49	11	0.5762	0.7050	1.4185	0.8173	49
12	0.5621	0.6796	1.4715	0.8271	48	12	0.5764	0.7054	1.4176	0.8171	48
13	0.5623	0.6800	1.4705	0.8269	47	13	0.5767	0.7059	1.4167	0.8170	47
14	0.5626	0.6805	1.4696	0.8268	46	14	0.5769	0.7063	1.4158	0.8168	46
15	0.5628	0.6809	1.4687	0.8266	45	15	0.5771	0.7067	1.4150	0.8166	45
16	0.5630	0.6813	1.4678	0.8264	44	16	0.5774	0.7072	1.4141	0.8165	44
17	0.5633	0.6817	1.4669	0.8263	43	17	0.5776	0.7076	1.4132	0.8163	43
18	0.5635	0.6822	1.4659	0.8261	42	18	0.5779	0.7080	1.4124	0.8161	42
19	0.5638	0.6826	1.4650	0.8259	41	19	0.5781	0.7085	1.4115	0.8160	41
20	0.5640	0.6830	1.4641	0.8258	40	20	0.5783	0.7089	1.4106	0.8158	40
21	0.5642	0.6834	1.4632	0.8256	39	21	0.5786	0.7094	1.4097	0.8156	39
22	0.5645	0.6839	1.4623	0.8254	38	22	0.5788	0.7098	1.4089	0.8155	38
23	0.5647	0.6843	1.4614	0.8253	37	23	0.5790	0.7102	1.4080	0.8153	37
24	0.5650	0.6847	1.4605	0.8251	36	24	0.5793	0.7107	1.4071	0.8151	36
25	0.5652	0.6851	1.4596	0.8249	35	25	0.5795	0.7111	1.4063	0.8150	35
26	0.5654	0.6856	1.4586	0.8248	34	26	0.5798	0.7115	1.4054	0.8148	34
27	0.5657	0.6860	1.4577	0.8246	33	27	0.5800	0.7120	1.4045	0.8146	33
28	0.5659	0.6864	1.4568	0.8245	32	28	0.5802	0.7124	1.4037	0.8145	32
29	0.5662	0.6869	1.4559	0.8243	31	29	0.5805	0.7129	1.4028	0.8143	31
30	0.5664	0.6873	1.4550	0.8241	30	30	0.5807	0.7133	1.4019	0.8141	30
31	0.5666	0.6877	1.4541	0.8240	29	31	0.5809	0.7137	1.4011	0.8139	29
32	0.5669	0.6881	1.4532	0.8238	28	32	0.5812	0.7142	1.4002	0.8138	28
33	0.5671	0.6886	1.4523	0.8236	27	33	0.5814	0.7146	1.3994	0.8136	27
34	0.5674	0.6890	1.4514	0.8235	26	34	0.5816	0.7151	1.3985	0.8134	26
35	0.5676	0.6894	1.4505	0.8233	25	35	0.5819	0.7155	1.3976	0.8133	25
36	0.5678	0.6899	1.4496	0.8231	24	36	0.5821	0.7159	1.3968	0.8131	24
37	0.5681	0.6903	1.4487	0.8230	23	37	0.5824	0.7164	1.3959	0.8129	23
38	0.5683	0.6907	1.4478	0.8228	22	38	0.5826	0.7168	1.3951	0.8128	22
39	0.5686	0.6911	1.4469	0.8226	21	39	0.5828	0.7173	1.3942	0.8126	21
40	0.5688	0.6916	1.4460	0.8225	20	40	0.5831	0.7177	1.3934	0.8124	20
41	0.5690	0.6920	1.4451	0.8223	19	41	0.5833	0.7181	1.3925	0.8123	19
42	0.5693	0.6924	1.4442	0.8221	18	42	0.5835	0.7186	1.3916	0.8121	18
43	0.5695	0.6929	1.4433	0.8220	17	43	0.5838	0.7190	1.3908	0.8119	17
44	0.5698	0.6933	1.4424	0.8218	16	44	0.5840	0.7195	1.3899	0.8117	16
45	0.5700	0.6937	1.4415	0.8216	15	45	0.5842	0.7199	1.3891	0.8116	15
46	0.5702	0.6942	1.4406	0.8215	14	46	0.5845	0.7203	1.3882	0.8114	14
47	0.5705	0.6946	1.4397	0.8213	13	47	0.5847	0.7208	1.3874	0.8112	13
48	0.5707	0.6950	1.4388	0.8211	12	48	0.5850	0.7212	1.3865	0.8111	12
49	0.5710	0.6954	1.4379	0.8210	11	49	0.5852	0.7217	1.3857	0.8109	11
50	0.5712	0.6959	1.4370	0.8208	10	50	0.5854	0.7221	1.3848	0.8107	10
51	0.5714	0.6963	1.4361	0.8207	9	51	0.5857	0.7226	1.3840	0.8106	9
52	0.5717	0.6967	1.4352	0.8205	8	52	0.5859	0.7230	1.3831	0.8104	8
53	0.5719	0.6972	1.4344	0.8203	7	53	0.5861	0.7234	1.3823	0.8102	7
54	0.5721	0.6976	1.4335	0.8202	6	54	0.5864	0.7239	1.3814	0.8100	6
55	0.5724	0.6980	1.4326	0.8200	5	55	0.5866	0.7243	1.3806	0.8099	5
56	0.5726	0.6985	1.4317	0.8198	4	56	0.5868	0.7248	1.3798	0.8097	4
57	0.5729	0.6989	1.4308	0.8197	3	57	0.5871	0.7252	1.3789	0.8095	3
58	0.5731	0.6993	1.4299	0.8195	2	58	0.5873	0.7257	1.3781	0.8094	2
59	0.5733	0.6998	1.4290	0.8193	1	59	0.5875	0.7261	1.3772	0.8092	1
60	0.5736	0.7002	1.4281	0.8192	0	60	0.5878	0.7265	1.3764	0.8090	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
55°						54°					

36°						37°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.5878	0.7265	1.3764	0.8090	60	0	0.6018	0.7536	1.3270	0.7986	60
1	0.5880	0.7270	1.3755	0.8088	59	1	0.6020	0.7540	1.3262	0.7985	59
2	0.5883	0.7274	1.3747	0.8087	58	2	0.6023	0.7545	1.3254	0.7983	58
3	0.5885	0.7279	1.3739	0.8085	57	3	0.6025	0.7549	1.3246	0.7981	57
4	0.5887	0.7283	1.3730	0.8083	56	4	0.6027	0.7554	1.3238	0.7979	56
5	0.5890	0.7288	1.3722	0.8082	55	5	0.6030	0.7558	1.3230	0.7978	55
6	0.5892	0.7292	1.3713	0.8080	54	6	0.6032	0.7563	1.3222	0.7976	54
7	0.5894	0.7297	1.3705	0.8078	53	7	0.6034	0.7568	1.3214	0.7974	53
8	0.5897	0.7301	1.3697	0.8076	52	8	0.6037	0.7572	1.3206	0.7972	52
9	0.5899	0.7306	1.3688	0.8075	51	9	0.6039	0.7577	1.3198	0.7971	51
10	0.5901	0.7310	1.3680	0.8073	50	10	0.6041	0.7581	1.3190	0.7969	50
11	0.5904	0.7314	1.3672	0.8071	49	11	0.6044	0.7586	1.3182	0.7967	49
12	0.5906	0.7319	1.3663	0.8070	48	12	0.6046	0.7590	1.3175	0.7965	48
13	0.5908	0.7323	1.3655	0.8068	47	13	0.6048	0.7595	1.3167	0.7964	47
14	0.5911	0.7328	1.3647	0.8066	46	14	0.6051	0.7600	1.3159	0.7962	46
15	0.5913	0.7332	1.3638	0.8064	45	15	0.6053	0.7604	1.3151	0.7960	45
16	0.5915	0.7337	1.3630	0.8063	44	16	0.6055	0.7609	1.3143	0.7958	44
17	0.5918	0.7341	1.3622	0.8061	43	17	0.6058	0.7613	1.3135	0.7956	43
18	0.5920	0.7346	1.3613	0.8059	42	18	0.6060	0.7618	1.3127	0.7955	42
19	0.5922	0.7350	1.3605	0.8058	41	19	0.6062	0.7623	1.3119	0.7953	41
20	0.5925	0.7355	1.3597	0.8056	40	20	0.6065	0.7627	1.3111	0.7951	40
21	0.5927	0.7359	1.3588	0.8054	39	21	0.6067	0.7632	1.3103	0.7949	39
22	0.5930	0.7364	1.3580	0.8052	38	22	0.6069	0.7636	1.3095	0.7948	38
23	0.5932	0.7368	1.3572	0.8051	37	23	0.6071	0.7641	1.3087	0.7946	37
24	0.5934	0.7373	1.3564	0.8049	36	24	0.6074	0.7646	1.3079	0.7944	36
25	0.5937	0.7377	1.3555	0.8047	35	25	0.6076	0.7650	1.3072	0.7942	35
26	0.5939	0.7382	1.3547	0.8045	34	26	0.6078	0.7655	1.3064	0.7941	34
27	0.5941	0.7386	1.3539	0.8044	33	27	0.6081	0.7659	1.3056	0.7939	33
28	0.5944	0.7391	1.3531	0.8042	32	28	0.6083	0.7664	1.3048	0.7937	32
29	0.5946	0.7395	1.3522	0.8040	31	29	0.6085	0.7669	1.3040	0.7935	31
30	0.5948	0.7400	1.3514	0.8039	30	30	0.6088	0.7673	1.3032	0.7934	30
31	0.5951	0.7404	1.3506	0.8037	29	31	0.6090	0.7678	1.3024	0.7932	29
32	0.5953	0.7409	1.3498	0.8035	28	32	0.6092	0.7683	1.3017	0.7930	28
33	0.5955	0.7413	1.3490	0.8033	27	33	0.6095	0.7687	1.3009	0.7928	27
34	0.5958	0.7418	1.3481	0.8032	26	34	0.6097	0.7692	1.3001	0.7926	26
35	0.5960	0.7422	1.3473	0.8030	25	35	0.6099	0.7696	1.2993	0.7925	25
36	0.5962	0.7427	1.3465	0.8028	24	36	0.6101	0.7701	1.2985	0.7923	24
37	0.5965	0.7431	1.3457	0.8026	23	37	0.6104	0.7706	1.2977	0.7921	23
38	0.5967	0.7436	1.3449	0.8025	22	38	0.6106	0.7710	1.2970	0.7919	22
39	0.5969	0.7440	1.3440	0.8023	21	39	0.6108	0.7715	1.2962	0.7918	21
40	0.5972	0.7445	1.3432	0.8021	20	40	0.6111	0.7720	1.2954	0.7916	20
41	0.5974	0.7449	1.3424	0.8019	19	41	0.6113	0.7724	1.2946	0.7914	19
42	0.5976	0.7454	1.3416	0.8018	18	42	0.6115	0.7729	1.2938	0.7912	18
43	0.5979	0.7458	1.3408	0.8016	17	43	0.6118	0.7734	1.2931	0.7910	17
44	0.5981	0.7463	1.3400	0.8014	16	44	0.6120	0.7738	1.2923	0.7909	16
45	0.5983	0.7467	1.3392	0.8013	15	45	0.6122	0.7743	1.2915	0.7907	15
46	0.5986	0.7472	1.3384	0.8011	14	46	0.6124	0.7747	1.2907	0.7905	14
47	0.5988	0.7476	1.3375	0.8009	13	47	0.6127	0.7752	1.2900	0.7903	13
48	0.5990	0.7481	1.3367	0.8007	12	48	0.6129	0.7757	1.2892	0.7902	12
49	0.5993	0.7485	1.3359	0.8006	11	49	0.6131	0.7761	1.2884	0.7900	11
50	0.5995	0.7490	1.3351	0.8004	10	50	0.6134	0.7766	1.2876	0.7898	10
51	0.5997	0.7495	1.3343	0.8002	9	51	0.6136	0.7771	1.2869	0.7896	9
52	0.6000	0.7499	1.3335	0.8000	8	52	0.6138	0.7775	1.2861	0.7894	8
53	0.6002	0.7504	1.3327	0.7999	7	53	0.6141	0.7780	1.2853	0.7893	7
54	0.6004	0.7508	1.3319	0.7997	6	54	0.6143	0.7785	1.2846	0.7891	6
55	0.6007	0.7513	1.3311	0.7995	5	55	0.6145	0.7789	1.2838	0.7889	5
56	0.6009	0.7517	1.3303	0.7993	4	56	0.6147	0.7794	1.2830	0.7887	4
57	0.6011	0.7522	1.3295	0.7992	3	57	0.6150	0.7799	1.2822	0.7885	3
58	0.6014	0.7526	1.3287	0.7990	2	58	0.6152	0.7803	1.2815	0.7884	2
59	0.6016	0.7531	1.3278	0.7988	1	59	0.6154	0.7808	1.2807	0.7882	1
60	0.6018	0.7536	1.3270	0.7986	0	60	0.6157	0.7813	1.2799	0.7880	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
53°						52°					

38°						39°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.6157	0.7813	1.2799	0.7880	60	0	0.6293	0.8098	1.2349	0.7771	60
1	0.6159	0.7818	1.2792	0.7878	59	1	0.6295	0.8103	1.2342	0.7770	59
2	0.6161	0.7822	1.2784	0.7877	58	2	0.6298	0.8107	1.2334	0.7768	58
3	0.6163	0.7827	1.2776	0.7875	57	3	0.6300	0.8112	1.2327	0.7766	57
4	0.6166	0.7832	1.2769	0.7873	56	4	0.6302	0.8117	1.2320	0.7764	56
5	0.6168	0.7836	1.2761	0.7871	55	5	0.6305	0.8122	1.2312	0.7762	55
6	0.6170	0.7841	1.2753	0.7869	54	6	0.6307	0.8127	1.2305	0.7760	54
7	0.6173	0.7846	1.2746	0.7868	53	7	0.6309	0.8132	1.2298	0.7759	53
8	0.6175	0.7850	1.2738	0.7866	52	8	0.6311	0.8136	1.2290	0.7757	52
9	0.6177	0.7855	1.2731	0.7864	51	9	0.6314	0.8141	1.2283	0.7755	51
10	0.6180	0.7860	1.2723	0.7862	50	10	0.6316	0.8146	1.2276	0.7753	50
11	0.6182	0.7865	1.2715	0.7860	49	11	0.6318	0.8151	1.2268	0.7751	49
12	0.6184	0.7869	1.2708	0.7859	48	12	0.6320	0.8156	1.2261	0.7749	48
13	0.6186	0.7874	1.2700	0.7857	47	13	0.6323	0.8161	1.2254	0.7748	47
14	0.6189	0.7879	1.2693	0.7855	46	14	0.6325	0.8165	1.2247	0.7746	46
15	0.6191	0.7883	1.2685	0.7853	45	15	0.6327	0.8170	1.2239	0.7744	45
16	0.6193	0.7888	1.2677	0.7851	44	16	0.6329	0.8175	1.2232	0.7742	44
17	0.6196	0.7893	1.2670	0.7850	43	17	0.6332	0.8180	1.2225	0.7740	43
18	0.6198	0.7898	1.2662	0.7848	42	18	0.6334	0.8185	1.2218	0.7738	42
19	0.6200	0.7902	1.2655	0.7846	41	19	0.6336	0.8190	1.2210	0.7737	41
20	0.6202	0.7907	1.2647	0.7844	40	20	0.6338	0.8195	1.2203	0.7735	40
21	0.6205	0.7912	1.2640	0.7842	39	21	0.6341	0.8199	1.2196	0.7733	39
22	0.6207	0.7916	1.2632	0.7841	38	22	0.6343	0.8204	1.2189	0.7731	38
23	0.6209	0.7921	1.2624	0.7839	37	23	0.6345	0.8209	1.2181	0.7729	37
24	0.6211	0.7926	1.2617	0.7837	36	24	0.6347	0.8214	1.2174	0.7727	36
25	0.6214	0.7931	1.2609	0.7835	35	25	0.6350	0.8219	1.2167	0.7725	35
26	0.6216	0.7935	1.2602	0.7833	34	26	0.6352	0.8224	1.2160	0.7724	34
27	0.6218	0.7940	1.2594	0.7832	33	27	0.6354	0.8229	1.2153	0.7722	33
28	0.6221	0.7945	1.2587	0.7830	32	28	0.6356	0.8234	1.2145	0.7720	32
29	0.6223	0.7950	1.2579	0.7828	31	29	0.6359	0.8238	1.2138	0.7718	31
30	0.6225	0.7954	1.2572	0.7826	30	30	0.6361	0.8243	1.2131	0.7716	30
31	0.6227	0.7959	1.2564	0.7824	29	31	0.6363	0.8248	1.2124	0.7714	29
32	0.6230	0.7964	1.2557	0.7822	28	32	0.6365	0.8253	1.2117	0.7713	28
33	0.6232	0.7969	1.2549	0.7821	27	33	0.6368	0.8258	1.2109	0.7711	27
34	0.6234	0.7973	1.2542	0.7819	26	34	0.6370	0.8263	1.2102	0.7709	26
35	0.6237	0.7978	1.2534	0.7817	25	35	0.6272	0.8268	1.2095	0.7707	25
36	0.6239	0.7983	1.2527	0.7815	24	36	0.6374	0.8273	1.2088	0.7705	24
37	0.6241	0.7988	1.2519	0.7813	23	37	0.6376	0.8278	1.2081	0.7703	23
38	0.6243	0.7992	1.2512	0.7812	22	38	0.6379	0.8283	1.2074	0.7701	22
39	0.6246	0.7997	1.2504	0.7810	21	39	0.6381	0.8287	1.2066	0.7700	21
40	0.6248	0.8002	1.2497	0.7808	20	40	0.6383	0.8292	1.2059	0.7698	20
41	0.6250	0.8007	1.2489	0.7806	19	41	0.6385	0.8297	1.2052	0.7696	19
42	0.6252	0.8012	1.2482	0.7804	18	42	0.6388	0.8302	1.2045	0.7694	18
43	0.6255	0.8016	1.2475	0.7802	17	43	0.6390	0.8307	1.2038	0.7692	17
44	0.6257	0.8021	1.2467	0.7801	16	44	0.6392	0.8312	1.2031	0.7690	16
45	0.6259	0.8026	1.2460	0.7799	15	45	0.6394	0.8317	1.2024	0.7688	15
46	0.6262	0.8031	1.2452	0.7797	14	46	0.6397	0.8322	1.2017	0.7687	14
47	0.6264	0.8035	1.2445	0.7795	13	47	0.6399	0.8327	1.2009	0.7685	13
48	0.6266	0.8040	1.2437	0.7793	12	48	0.6401	0.8332	1.2002	0.7683	12
49	0.6268	0.8045	1.2430	0.7792	11	49	0.6403	0.8337	1.1995	0.7681	11
50	0.6271	0.8050	1.2423	0.7790	10	50	0.6406	0.8342	1.1988	0.7679	10
51	0.6273	0.8055	1.2415	0.7788	9	51	0.6408	0.8346	1.1981	0.7677	9
52	0.6275	0.8059	1.2408	0.7786	8	52	0.6410	0.8351	1.1974	0.7675	8
53	0.6277	0.8064	1.2401	0.7784	7	53	0.6412	0.8356	1.1967	0.7674	7
54	0.6280	0.8069	1.2393	0.7782	6	54	0.6414	0.8361	1.1960	0.7672	6
55	0.6282	0.8074	1.2386	0.7781	5	55	0.6417	0.8366	1.1953	0.7670	5
56	0.6284	0.8079	1.2378	0.7779	4	56	0.6419	0.8371	1.1946	0.7668	4
57	0.6286	0.8083	1.2371	0.7777	3	57	0.6421	0.8376	1.1939	0.7666	3
58	0.6289	0.8088	1.2364	0.7775	2	58	0.6423	0.8381	1.1932	0.7664	2
59	0.6291	0.8093	1.2356	0.7773	1	59	0.6426	0.8386	1.1925	0.7662	1
60	0.6293	0.8098	1.2349	0.7771	0	60	0.6428	0.8391	1.1918	0.7660	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
51°						50°					

′	Sin	Tan	Cot	Cos	
	40°				
0	0.6428	0.8391	1.1918	0.7660	60
1	0.6430	0.8396	1.1910	0.7659	59
2	0.6432	0.8401	1.1903	0.7657	58
3	0.6435	0.8406	1.1896	0.7655	57
4	0.6437	0.8411	1.1889	0.7653	56
5	0.6439	0.8416	1.1882	0.7651	55
6	0.6441	0.8421	1.1875	0.7649	54
7	0.6443	0.8426	1.1868	0.7647	53
8	0.6446	0.8431	1.1861	0.7645	52
9	0.6448	0.8436	1.1854	0.7644	51
10	0.6450	0.8441	1.1847	0.7642	50
11	0.6452	0.8446	1.1840	0.7640	49
12	0.6455	0.8451	1.1833	0.7638	48
13	0.6457	0.8456	1.1826	0.7636	47
14	0.6459	0.8461	1.1819	0.7634	46
15	0.6461	0.8466	1.1812	0.7632	45
16	0.6463	0.8471	1.1806	0.7630	44
17	0.6466	0.8476	1.1799	0.7629	43
18	0.6468	0.8481	1.1792	0.7627	42
19	0.6470	0.8486	1.1785	0.7625	41
20	0.6472	0.8491	1.1778	0.7623	40
21	0.6475	0.8496	1.1771	0.7621	39
22	0.6477	0.8501	1.1764	0.7619	38
23	0.6479	0.8506	1.1757	0.7617	37
24	0.6481	0.8511	1.1750	0.7615	36
25	0.6483	0.8516	1.1743	0.7613	35
26	0.6486	0.8521	1.1736	0.7612	34
27	0.6488	0.8526	1.1729	0.7610	33
28	0.6490	0.8531	1.1722	0.7608	32
29	0.6492	0.8536	1.1715	0.7606	31
30	0.6494	0.8541	1.1708	0.7604	30
31	0.6497	0.8546	1.1702	0.7602	29
32	0.6499	0.8551	1.1695	0.7600	28
33	0.6501	0.8556	1.1688	0.7598	27
34	0.6503	0.8561	1.1681	0.7596	26
35	0.6506	0.8566	1.1674	0.7595	25
36	0.6508	0.8571	1.1667	0.7593	24
37	0.6510	0.8576	1.1660	0.7591	23
38	0.6512	0.8581	1.1653	0.7589	22
39	0.6514	0.8586	1.1647	0.7587	21
40	0.6517	0.8591	1.1640	0.7585	20
41	0.6519	0.8596	1.1633	0.7583	19
42	0.6521	0.8601	1.1626	0.7581	18
43	0.6523	0.8606	1.1619	0.7579	17
44	0.6525	0.8611	1.1612	0.7578	16
45	0.6528	0.8617	1.1606	0.7576	15
46	0.6530	0.8622	1.1599	0.7574	14
47	0.6532	0.8627	1.1592	0.7572	13
48	0.6534	0.8632	1.1585	0.7570	12
49	0.6536	0.8637	1.1578	0.7568	11
50	0.6539	0.8642	1.1571	0.7566	10
51	0.6541	0.8647	1.1565	0.7564	9
52	0.6543	0.8652	1.1558	0.7562	8
53	0.6545	0.8657	1.1551	0.7560	7
54	0.6547	0.8662	1.1544	0.7559	6
55	0.6550	0.8667	1.1538	0.7557	5
56	0.6552	0.8672	1.1531	0.7555	4
57	0.6554	0.8678	1.1524	0.7553	3
58	0.6556	0.8683	1.1517	0.7551	2
59	0.6558	0.8688	1.1510	0.7549	1
60	0.6561	0.8693	1.1504	0.7547	0
	Cos	Cot	Tan	Sin	′
	49°				

′	Sin	Tan	Cot	Cos	
	41°				
0	0.6561	0.8693	1.1504	0.7547	60
1	0.6563	0.8698	1.1497	0.7545	59
2	0.6565	0.8703	1.1490	0.7543	58
3	0.6567	0.8708	1.1483	0.7541	57
4	0.6569	0.8713	1.1477	0.7539	56
5	0.6572	0.8718	1.1470	0.7538	55
6	0.6574	0.8724	1.1463	0.7536	54
7	0.6576	0.8729	1.1456	0.7534	53
8	0.6578	0.8734	1.1450	0.7532	52
9	0.6580	0.8739	1.1443	0.7530	51
10	0.6583	0.8744	1.1436	0.7528	50
11	0.6585	0.8749	1.1430	0.7526	49
12	0.6587	0.8754	1.1423	0.7524	48
13	0.6589	0.8759	1.1416	0.7522	47
14	0.6591	0.8765	1.1410	0.7520	46
15	0.6593	0.8770	1.1403	0.7518	45
16	0.6596	0.8775	1.1396	0.7516	44
17	0.6598	0.8780	1.1389	0.7515	43
18	0.6600	0.8785	1.1383	0.7513	42
19	0.6602	0.8790	1.1376	0.7511	41
20	0.6604	0.8796	1.1369	0.7509	40
21	0.6607	0.8801	1.1363	0.7507	39
22	0.6609	0.8806	1.1356	0.7505	38
23	0.6611	0.8811	1.1349	0.7503	37
24	0.6613	0.8816	1.1343	0.7501	36
25	0.6615	0.8821	1.1336	0.7499	35
26	0.6617	0.8827	1.1329	0.7497	34
27	0.6620	0.8832	1.1323	0.7495	33
28	0.6622	0.8837	1.1316	0.7493	32
29	0.6624	0.8842	1.1310	0.7491	31
30	0.6626	0.8847	1.1303	0.7490	30
31	0.6628	0.8852	1.1296	0.7488	29
32	0.6631	0.8858	1.1290	0.7486	28
33	0.6633	0.8863	1.1283	0.7484	27
34	0.6635	0.8868	1.1276	0.7482	26
35	0.6637	0.8873	1.1270	0.7480	25
36	0.6639	0.8878	1.1263	0.7478	24
37	0.6641	0.8884	1.1257	0.7476	23
38	0.6644	0.8889	1.1250	0.7474	22
39	0.6646	0.8894	1.1243	0.7472	21
40	0.6648	0.8899	1.1237	0.7470	20
41	0.6650	0.8904	1.1230	0.7468	19
42	0.6652	0.8910	1.1224	0.7466	18
43	0.6654	0.8915	1.1217	0.7464	17
44	0.6657	0.8920	1.1211	0.7463	16
45	0.6659	0.8925	1.1204	0.7461	15
46	0.6661	0.8931	1.1197	0.7459	14
47	0.6663	0.8936	1.1191	0.7457	13
48	0.6665	0.8941	1.1184	0.7455	12
49	0.6667	0.8946	1.1178	0.7453	11
50	0.6670	0.8952	1.1171	0.7451	10
51	0.6672	0.8957	1.1165	0.7449	9
52	0.6674	0.8962	1.1158	0.7447	8
53	0.6676	0.8967	1.1152	0.7445	7
54	0.6678	0.8972	1.1145	0.7443	6
55	0.6680	0.8978	1.1139	0.7441	5
56	0.6683	0.8983	1.1132	0.7439	4
57	0.6685	0.8988	1.1126	0.7437	3
58	0.6687	0.8994	1.1119	0.7435	2
59	0.6689	0.8999	1.1113	0.7433	1
60	0.6691	0.9004	1.1106	0.7431	0
	Cos	Cot	Tan	Sin	′
	48°				

42°						43°					
′	Sin	Tan	Cot	Cos		′	Sin	Tan	Cot	Cos	
0	0.6691	0.9004	1.1106	0.7431	60	0	0.6820	0.9325	1.0724	0.7314	60
1	0.6693	0.9009	1.1100	0.7430	59	1	0.6822	0.9331	1.0717	0.7312	59
2	0.6696	0.9015	1.1093	0.7428	58	2	0.6824	0.9336	1.0711	0.7310	58
3	0.6698	0.9020	1.1087	0.7426	57	3	0.6826	0.9341	1.0705	0.7308	57
4	0.6700	0.9025	1.1080	0.7424	56	4	0.6828	0.9347	1.0699	0.7306	56
5	0.6702	0.9030	1.1074	0.7422	55	5	0.6831	0.9352	1.0692	0.7304	55
6	0.6704	0.9036	1.1067	0.7420	54	6	0.6833	0.9358	1.0686	0.7302	54
7	0.6706	0.9041	1.1061	0.7418	53	7	0.6835	0.9363	1.0680	0.7300	53
8	0.6709	0.9046	1.1054	0.7416	52	8	0.6837	0.9369	1.0674	0.7298	52
9	0.6711	0.9052	1.1048	0.7414	51	9	0.6839	0.9374	1.0668	0.7296	51
10	0.6713	0.9057	1.1041	0.7412	50	10	0.6841	0.9380	1.0661	0.7294	50
11	0.6715	0.9062	1.1035	0.7410	49	11	0.6843	0.9385	1.0655	0.7292	49
12	0.6717	0.9067	1.1028	0.7408	48	12	0.6845	0.9391	1.0649	0.7290	48
13	0.6719	0.9073	1.1022	0.7406	47	13	0.6848	0.9396	1.0643	0.7288	47
14	0.6722	0.9078	1.1016	0.7404	46	14	0.6850	0.9402	1.0637	0.7286	46
15	0.6724	0.9083	1.1009	0.7402	45	15	0.6852	0.9407	1.0630	0.7284	45
16	0.6726	0.9089	1.1003	0.7400	44	16	0.6854	0.9413	1.0624	0.7282	44
17	0.6728	0.9094	1.0996	0.7398	43	17	0.6856	0.9418	1.0618	0.7280	43
18	0.6730	0.9099	1.0990	0.7396	42	18	0.6858	0.9424	1.0612	0.7278	42
19	0.6732	0.9105	1.0983	0.7394	41	19	0.6860	0.9429	1.0606	0.7276	41
20	0.6734	0.9110	1.0977	0.7392	40	20	0.6862	0.9435	1.0599	0.7274	40
21	0.6737	0.9115	1.0971	0.7390	39	21	0.6865	0.9440	1.0593	0.7272	39
22	0.6739	0.9121	1.0964	0.7388	38	22	0.6867	0.9446	1.0587	0.7270	38
23	0.6741	0.9126	1.0958	0.7387	37	23	0.6869	0.9451	1.0581	0.7268	37
24	0.6743	0.9131	1.0951	0.7385	36	24	0.6871	0.9457	1.0575	0.7266	36
25	0.6745	0.9137	1.0945	0.7383	35	25	0.6873	0.9462	1.0569	0.7264	35
26	0.6747	0.9142	1.0939	0.7381	34	26	0.6875	0.9468	1.0562	0.7262	34
27	0.6749	0.9147	1.0932	0.7379	33	27	0.6877	0.9473	1.0556	0.7260	33
28	0.6752	0.9153	1.0926	0.7377	32	28	0.6879	0.9479	1.0550	0.7258	32
29	0.6754	0.9158	1.0919	0.7375	31	29	0.6881	0.9484	1.0544	0.7256	31
30	0.6756	0.9163	1.0913	0.7373	30	30	0.6884	0.9490	1.0538	0.7254	30
31	0.6758	0.9169	1.0907	0.7371	29	31	0.6886	0.9495	1.0532	0.7252	29
32	0.6760	0.9174	1.0900	0.7369	28	32	0.6888	0.9501	1.0526	0.7250	28
33	0.6762	0.9179	1.0894	0.7367	27	33	0.6890	0.9506	1.0519	0.7248	27
34	0.6764	0.9185	1.0888	0.7365	26	34	0.6892	0.9512	1.0513	0.7246	26
35	0.6767	0.9190	1.0881	0.7363	25	35	0.6894	0.9517	1.0507	0.7244	25
36	0.6769	0.9195	1.0875	0.7361	24	36	0.6896	0.9523	1.0501	0.7242	24
37	0.6771	0.9201	1.0869	0.7359	23	37	0.6898	0.9528	1.0495	0.7240	23
38	0.6773	0.9206	1.0862	0.7357	22	38	0.6900	0.9534	1.0489	0.7238	22
39	0.6775	0.9212	1.0856	0.7355	21	39	0.6903	0.9540	1.0483	0.7236	21
40	0.6777	0.9217	1.0850	0.7353	20	40	0.6905	0.9545	1.0477	0.7234	20
41	0.6779	0.9222	1.0843	0.7351	19	41	0.6907	0.9551	1.0470	0.7232	19
42	0.6782	0.9228	1.0837	0.7349	18	42	0.6909	0.9556	1.0464	0.7230	18
43	0.6784	0.9233	1.0831	0.7347	17	43	0.6911	0.9562	1.0458	0.7228	17
44	0.6786	0.9239	1.0824	0.7345	16	44	0.6913	0.9567	1.0452	0.7226	16
45	0.6788	0.9244	1.0818	0.7343	15	45	0.6915	0.9573	1.0446	0.7224	15
46	0.6790	0.9249	1.0812	0.7341	14	46	0.6917	0.9578	1.0440	0.7222	14
47	0.6792	0.9255	1.0805	0.7339	13	47	0.6919	0.9584	1.0434	0.7220	13
48	0.6794	0.9260	1.0799	0.7337	12	48	0.6921	0.9590	1.0428	0.7218	12
49	0.6797	0.9266	1.0793	0.7335	11	49	0.6924	0.9595	1.0422	0.7216	11
50	0.6799	0.9271	1.0786	0.7333	10	50	0.6926	0.9601	1.0416	0.7214	10
51	0.6801	0.9276	1.0780	0.7331	9	51	0.6928	0.9606	1.0410	0.7212	9
52	0.6803	0.9282	1.0774	0.7329	8	52	0.6930	0.9612	1.0404	0.7210	8
53	0.6805	0.9287	1.0768	0.7327	7	53	0.6932	0.9618	1.0398	0.7208	7
54	0.6807	0.9293	1.0761	0.7325	6	54	0.6934	0.9623	1.0392	0.7206	6
55	0.6809	0.9298	1.0755	0.7323	5	55	0.6936	0.9629	1.0385	0.7203	5
56	0.6811	0.9303	1.0749	0.7321	4	56	0.6938	0.9634	1.0379	0.7201	4
57	0.6814	0.9309	1.0742	0.7319	3	57	0.6940	0.9640	1.0373	0.7199	3
58	0.6816	0.9314	1.0736	0.7318	2	58	0.6942	0.9646	1.0367	0.7197	2
59	0.6818	0.9320	1.0730	0.7316	1	59	0.6944	0.9651	1.0361	0.7195	1
60	0.6820	0.9325	1.0724	0.7314	0	60	0.6947	0.9657	1.0355	0.7193	0
	Cos	Cot	Tan	Sin	′		Cos	Cot	Tan	Sin	′
47°						46°					

44°

′	Sin	Tan	Cot	Cos	
0	0.6947	0.9657	1.0355	0.7193	60
1	0.6949	0.9663	1.0349	0.7191	59
2	0.6951	0.9668	1.0343	0.7189	58
3	0.6953	0.9674	1.0337	0.7187	57
4	0.6955	0.9679	1.0331	0.7185	56
5	0.6957	0.9685	1.0325	0.7183	55
6	0.6959	0.9691	1.0319	0.7181	54
7	0.6961	0.9696	1.0313	0.7179	53
8	0.6963	0.9702	1.0307	0.7177	52
9	0.6965	0.9708	1.0301	0.7175	51
10	0.6967	0.9713	1.0295	0.7173	50
11	0.6970	0.9719	1.0289	0.7171	49
12	0.6972	0.9725	1.0283	0.7169	48
13	0.6974	0.9730	1.0277	0.7167	47
14	0.6976	0.9736	1.0271	0.7165	46
15	0.6978	0.9742	1.0265	0.7163	45
16	0.6980	0.9747	1.0259	0.7161	44
17	0.6982	0.9753	1.0253	0.7159	43
18	0.6984	0.9759	1.0247	0.7157	42
19	0.6986	0.9764	1.0241	0.7155	41
20	0.6988	0.9770	1.0235	0.7153	40
21	0.6990	0.9776	1.0230	0.7151	39
22	0.6992	0.9781	1.0224	0.7149	38
23	0.6995	0.9787	1.0218	0.7147	37
24	0.6997	0.9793	1.0212	0.7145	36
25	0.6999	0.9798	1.0206	0.7143	35
26	0.7001	0.9804	1.0200	0.7141	34
27	0.7003	0.9810	1.0194	0.7139	33
28	0.7005	0.9816	1.0188	0.7137	32
29	0.7007	0.9821	1.0182	0.7135	31
30	0.7009	0.9827	1.0176	0.7133	30
31	0.7011	0.9833	1.0170	0.7130	29
32	0.7013	0.9838	1.0164	0.7128	28
33	0.7015	0.9844	1.0158	0.7126	27
34	0.7017	0.9850	1.0152	0.7124	26
35	0.7019	0.9856	1.0147	0.7122	25
36	0.7022	0.9861	1.0141	0.7120	24
37	0.7024	0.9867	1.0135	0.7118	23
38	0.7026	0.9873	1.0129	0.7116	22
39	0.7028	0.9879	1.0123	0.7114	21
40	0.7030	0.9884	1.0117	0.7112	20
41	0.7032	0.9890	1.0111	0.7110	19
42	0.7034	0.9896	1.0105	0.7108	18
43	0.7036	0.9902	1.0099	0.7106	17
44	0.7038	0.9907	1.0094	0.7104	16
45	0.7040	0.9913	1.0088	0.7102	15
46	0.7042	0.9919	1.0082	0.7100	14
47	0.7044	0.9925	1.0076	0.7098	13
48	0.7046	0.9930	1.0070	0.7096	12
49	0.7048	0.9936	1.0064	0.7094	11
50	0.7050	0.9942	1.0058	0.7092	10
51	0.7053	0.9948	1.0052	0.7090	9
52	0.7055	0.9954	1.0047	0.7088	8
53	0.7057	0.9959	1.0041	0.7085	7
54	0.7059	0.9965	1.0035	0.7083	6
55	0.7061	0.9971	1.0029	0.7081	5
56	0.7063	0.9977	1.0023	0.7079	4
57	0.7065	0.9983	1.0017	0.7077	3
58	0.7067	0.9988	1.0012	0.7075	2
59	0.7069	0.9994	1.0006	0.7073	1
60	0.7071	1.0000	1.0000	0.7071	0
	Cos	Cot	Tan	Sin	′

45°

TABLE IV

—o—

SQUARES OF NUMBERS

No.	Square.	No.	Square.	No.	Square.	No.	Square.	No.	Square.
0	0	20	400	40	1600	60	3600	80	6400
1	1	21	441	41	1681	61	3721	81	6561
2	4	22	484	42	1764	62	3844	82	6724
3	9	23	529	43	1849	63	3969	83	6889
4	16	24	576	44	1936	64	4096	84	7056
5	25	25	625	45	2025	65	4225	85	7225
6	36	26	676	46	2116	66	4356	86	7396
7	49	27	729	47	2209	67	4489	87	7569
8	64	28	784	48	2304	68	4624	88	7744
9	81	29	841	49	2401	69	4761	89	7921
10	100	30	900	50	2500	70	4900	90	8100
11	121	31	961	51	2601	71	5041	91	8281
12	144	32	1024	52	2704	72	5184	92	8464
13	169	33	1089	53	2809	73	5329	93	8649
14	196	34	1156	54	2916	74	5476	94	8836
15	225	35	1225	55	3025	75	5625	95	9025
16	256	36	1296	56	3136	76	5776	96	9216
17	289	37	1369	57	3249	77	5929	97	9409
18	324	38	1444	58	3364	78	6084	98	9604
19	361	39	1521	59	3481	79	6241	99	9801
20	400	40	1600	60	3600	80	6400	100	10000

	1◆◆	2◆◆	3◆◆	4◆◆	5◆◆	6◆◆	7◆◆	8◆◆	9◆◆	U	Diff.
00	100	400	900	1600	2500	3600	4900	6400	8100	00	1
01	102	404	906	1608	2510	3612	4914	6416	8118	01	3
02	104	408	912	1616	2520	3624	4928	6432	8136	04	5
03	106	412	918	1624	2530	3636	4942	6448	8154	09	7
04	108	416	924	1632	2540	3648	4956	6464	8172	16	9
05	110	420	930	1640	2550	3660	4970	6480	8190	25	11
06	112	424	936	1648	2560	3672	4984	6496	8208	36	13
07	114	428	942	1656	2570	3684	4998	6512	8226	49	15
08	116	432	948	1664	2580	3696	5012	6528	8244	64	17
09	118	436	954	1672	2590	3708	5026	6544	8262	81	19*
10	121	441	961	1681	2601	3721	5041	6561	8281	00	21
11	123	445	967	1689	2611	3733	5055	6577	8299	21	23
12	125	449	973	1697	2621	3745	5069	6593	8317	44	25
13	127	453	979	1705	2631	3757	5083	6609	8335	69	27
14	129	457	985	1713	2641	3769	5097	6625	8353	96	29*
15	132	462	992	1722	2652	3782	5112	6642	8372	25	31
16	134	466	998	1730	2662	3794	5126	6658	8390	56	33
17	136	470	1004	1738	2672	3806	5140	6674	8408	89	35*
18	139	475	1011	1747	2683	3819	5155	6691	8427	24	37
19	141	479	1017	1755	2693	3831	5169	6707	8445	61	39*
20	144	484	1024	1764	2704	3844	5184	6724	8464	00	41
21	146	488	1030	1772	2714	3856	5198	6740	8482	41	43
22	148	492	1036	1780	2724	3868	5212	6756	8500	84	45*
23	151	497	1043	1789	2735	3881	5227	6773	8519	29	47
24	153	501	1049	1797	2745	3893	5241	6789	8537	76	49*
25	156	506	1056	1806	2756	3906	5256	6806	8556	25	51
26	158	510	1062	1814	2766	3918	5270	6822	8574	76	53*
27	161	515	1069	1823	2777	3931	5285	6839	8593	29	55
28	163	519	1075	1831	2787	3943	5299	6855	8611	84	57*
29	166	524	1082	1840	2798	3956	5314	6872	8630	41	59*
30	169	529	1089	1849	2809	3969	5329	6889	8649	00	61
31	171	533	1095	1857	2819	3981	5343	6905	8667	61	63*
32	174	538	1102	1866	2830	3994	5358	6922	8686	24	65
33	176	542	1108	1874	2840	4006	5372	6938	8704	89	67*
34	179	547	1115	1883	2851	4019	5387	6955	8723	56	69*
35	182	552	1122	1892	2862	4032	5402	6972	8742	25	71
36	184	556	1128	1900	2872	4044	5416	6988	8760	96	73*
37	187	561	1135	1909	2883	4057	5431	7005	8779	69	75*
38	190	566	1142	1918	2894	4070	5446	7022	8798	44	77*
39	193	571	1149	1927	2905	4083	5461	7039	8817	21	79*
40	196	576	1156	1936	2916	4096	5476	7056	8836	00	81
41	198	580	1162	1944	2926	4108	5490	7072	8854	81	83*
42	201	585	1169	1953	2937	4121	5505	7089	8873	64	85*
43	204	590	1176	1962	2948	4134	5520	7106	8892	49	87*
44	207	595	1183	1971	2959	4147	5535	7123	8911	36	89*
45	210	600	1190	1980	2970	4160	5550	7140	8930	25	91*
46	213	605	1197	1989	2981	4173	5565	7157	8949	16	93*
47	216	610	1204	1998	2992	4186	5580	7174	8968	09	95*
48	219	615	1211	2007	3003	4199	5595	7191	8987	04	97*
49	222	620	1218	2016	3014	4212	5610	7208	9006	01	99*
50	225	625	1225	2025	3025	4225	5625	7225	9025	00	

	1◆◆	2◆◆	3◆◆	4◆◆	5◆◆	6◆◆	7◆◆	8◆◆	9◆◆	U	Diff.
50	225	625	1225	2025	3025	4225	5625	7225	9025	00	1
51	228	630	1232	2034	3036	4238	5640	7242	9044	01	
52	231	635	1239	2043	3047	4251	5655	7259	9063	04	3
53	234	640	1246	2052	3058	4264	5670	7276	9082	09	5
											7
54	237	645	1253	2061	3069	4277	5685	7293	9101	16	
55	240	650	1260	2070	3080	4290	5700	7310	9120	25	9
56	243	655	1267	2079	3091	4303	5715	7327	9139	36	11
											13
57	246	660	1274	2088	3102	4316	5730	7344	9158	49	
58	249	665	1281	2097	3113	4329	5745	7361	9177	64	15
59	252	670	1288	2106	3124	4342	5760	7378	9196	81	17
											19*
60	256	676	1296	2116	3136	4356	5776	7396	9216	00	21
61	259	681	1303	2125	3147	4369	5791	7413	9235	21	
62	262	686	1310	2134	3158	4382	5806	7430	9254	44	23
63	265	691	1317	2143	3169	4395	5821	7447	9273	69	25
											27
64	268	696	1324	2152	3180	4408	5836	7464	9292	96	
65	272	702	1332	2162	3192	4422	5852	7482	9312	25	29*
66	275	707	1339	2171	3203	4435	5867	7499	9331	56	31
											33
67	278	712	1346	2180	3214	4448	5882	7516	9350	89	
68	282	718	1354	2190	3226	4462	5898	7534	9370	24	35*
69	285	723	1361	2199	3237	4475	5913	7551	9389	61	37
											39*
70	289	729	1369	2209	3249	4489	5929	7569	9409	00	41
71	292	734	1376	2218	3260	4502	5944	7586	9428	41	
72	295	739	1383	2227	3271	4515	5959	7603	9447	84	43
73	299	745	1391	2237	3283	4529	5975	7621	9467	29	45*
											47
74	302	750	1398	2246	3294	4542	5990	7638	9486	76	
75	306	756	1406	2256	3306	4556	6006	7656	9506	25	49*
76	309	761	1413	2265	3317	4569	6021	7673	9525	76	51
											53*
77	313	767	1421	2275	3329	4583	6037	7691	9545	29	
78	316	772	1428	2284	3340	4596	6052	7708	9564	84	55
79	320	778	1436	2294	3352	4610	6068	7726	9584	41	57*
											59*
80	324	784	1444	2304	3364	4624	6084	7744	9604	00	61
81	327	789	1451	2313	3375	4637	6099	7761	9623	61	
82	331	795	1459	2323	3387	4651	6115	7779	9643	24	63*
83	334	800	1466	2332	3398	4664	6130	7796	9662	89	65
											67*
84	338	806	1474	2342	3410	4678	6146	7814	9682	56	
85	342	812	1482	2352	3422	4692	6162	7832	9702	25	69*
86	345	817	1489	2361	3433	4705	6177	7849	9721	96	71
											73*
87	349	823	1497	2371	3445	4719	6193	7867	9741	69	
88	353	829	1505	2381	3457	4733	6209	7885	9761	44	75*
89	357	835	1513	2391	3469	4747	6225	7903	9781	21	77*
											79*
90	361	841	1521	2401	3481	4761	6241	7921	9801	00	81
91	364	846	1528	2410	3492	4774	6256	7938	9820	81	
92	368	852	1536	2420	3504	4788	6272	7956	9840	64	83*
93	372	858	1544	2430	3516	4802	6288	7974	9860	49	85*
											87*
94	376	864	1552	2440	3528	4816	6304	7992	9880	36	
95	380	870	1560	2450	3540	4830	6320	8010	9900	25	89*
96	384	876	1568	2460	3552	4844	6336	8028	9920	16	91*
											93*
97	388	882	1576	2470	3564	4858	6352	8046	9940	09	
98	392	888	1584	2480	3576	4872	6368	8064	9960	04	95*
99	396	894	1592	2490	3588	4886	6384	8082	9980	01	97*
											99*
100	400	900	1600	2500	3600	4900	6400	8100	10000	00